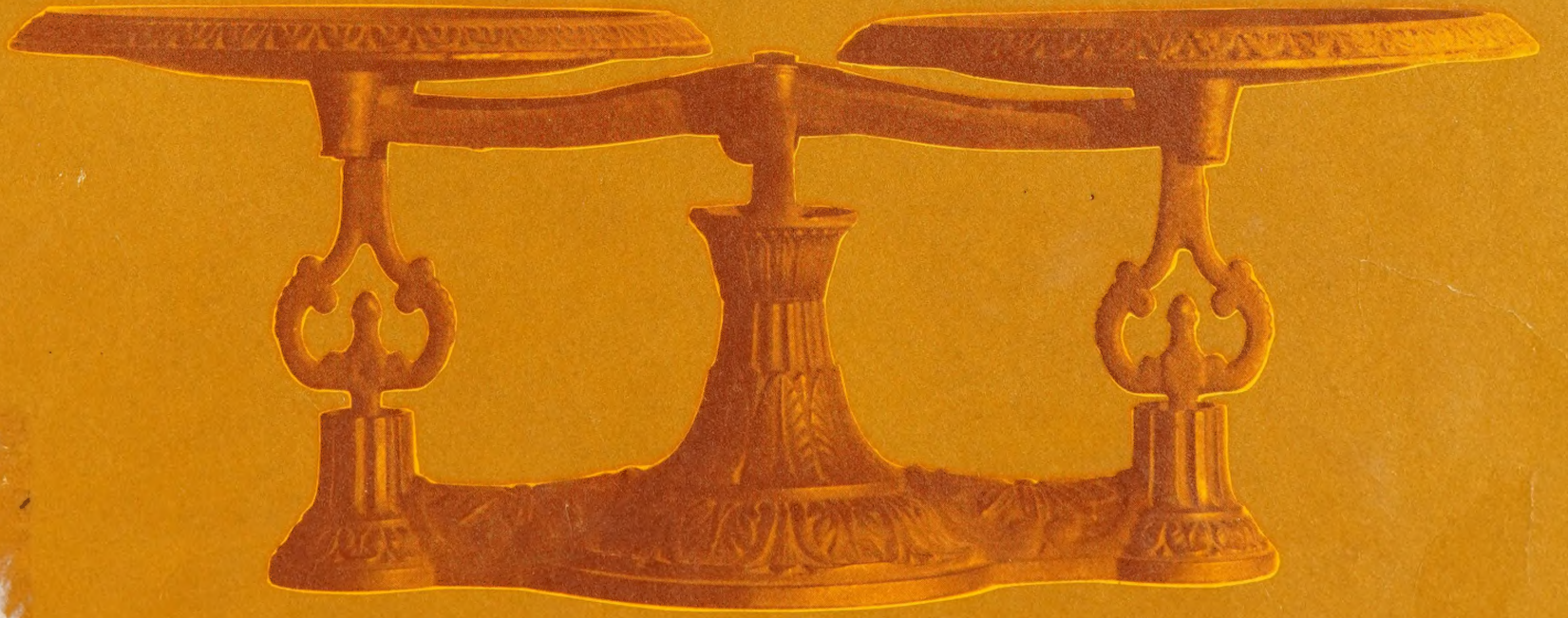
Health Protection
and
Food Laws

A PUBLICATION OF THE DEPARTMENT OF
NATIONAL HEALTH AND WELFARE, CANADA

HEALTH PROTECTION AND FOOD LAWS



EDUCATIONAL SERVICES
FOOD AND DRUG DIRECTORATE

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THE MINISTER OF NATIONAL HEALTH AND WELFARE

HEALTH PROTECTION AND FOOD LAWS

This booklet is designed to explain the major aspects of Canadian food legislation under the jurisdiction of the Food and Drug Directorate, to health educators, nutritionists, public health workers, dietitians and other professional groups who we believe have a primary concern with the elimination of health hazards in foods.

This publication is part of our food education program. Through it, we hope to inform and to enlist the cooperation of all educators who are involved in consumer or health education. We also wish to establish a closer dialogue with all professional groups interested in food legislation as it relates to health.

For convenient use as a reference booklet, we have included a list of resource materials at the end of each section which we hope will be helpful to teachers and students.

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FDD FOOD LEGISLATION

"Once a secondary matter, safe-guarding health has now become the primary principle (of food legislation) because of the prodigious development of the food industry, of the evolution of social ideas and of the increased risks that modern techniques may present to man's health . . .

This factor therefore is now at the root of all modern food legislation . . ." Bigwood, E. J. and Gérard A.

The Food and Drug Directorate is the branch of the Department of National Health and Welfare responsible for protecting the Canadian public from hazards to health in the sale of foods and for dealing with matters of food composition. The legislation that makes it possible for the Directorate to exercise this control is the Food and Drugs Act and Regulations.

The genesis of this legislation goes back to the early days of Confederation when intemperance constituted an important social and health problem. There was a great demand for alcohol at that time and no control over its production, consequently much of the alcohol sold was adulterated. Pressure was brought upon the government to take action to check such adulteration in the hope of preventing health hazards associated with the consumption of poor quality liquor. "The Inland Revenue Act" passed in 1875 thus became the earliest law enacted by the Canadian government to protect the public against adulteration of food, drink and drugs. It was the first such law of national scope in the Americas. In 1877 the first annual report issued by the appointed analysts revealed that 51.5% of the food samples examined, mainly spices and milk, were adulterated.

A major amendment to this Act was passed in 1884 and created the position of a Chief Analyst in Ottawa. The legislation was then known as the Adulteration Act. In 1910 the first standards for foods were promulgated after consultation with representatives from the food industry. The pattern of cooperation with industry thus set up has been maintained ever since by the FDD. In 1919 with the establishment of the Department of Health, the Food and Drugs Division was created and became responsible for the administration of the Adulteration Act. This Act was later repealed in 1920 and superseded by the Food and Drugs Act which has been amended several times since then. The present Food and Drugs Act was passed in 1953.

To keep up with new scientific or technological findings and to cope with the demands of modern food industry it is necessary to have a system of legislation which is flexible enough to allow for the introduction of new regulations without undue delay. Such a provision is contained in the Food and Drugs Act whereby authority has been entrusted to the Governor-in-Council for making new regulations. These regulations have the same force and effect as the Act itself.

Requests for changes in the regulations may arise from several sources including consumer groups, food industry and researchers. Experimental work may have been conducted either in FDD's laboratories, the universities or in industry by various scientists and food technologists to evaluate the toxicity of a food additive, to introduce a new processing technique or to study the nutritional status of a population. These findings may reveal the need to allow

for the use of a new food additive or for the enrichment of certain foods.

When a request is brought to FDD's attention, it is studied in committee by members of the Food Advisory Bureau, research scientists as well as administrative representatives from the Directorate. A number of factors must be considered including health hazards, fraud, surveillance problems as well as international standards. The committee's decision is then communicated to the food industry by a Trade Information Letter which briefly outlines the problem and the proposed regulation and invites comments from members of the trade. If the matter is controversial it may be necessary to discuss the proposals in detail with the representatives of the industry concerned and to seek the advice of experts in the field of interest. After a careful study of the recommendations received, FDD outlines the conditions to be regulated and the Legal Division of the Department of National Health and Welfare drafts the new regulation.

The Department of Justice will review this draft and the regulation in its final form will be referred to the Minister of National Health and Welfare who presents it to the Governor-in-Council, that is, the Cabinet composed of the Prime Minister and Ministers of the Crown. It is finally published in the Canada Gazette when it becomes law.

Although there is no provision for public hearings the Minister of National Health and Welfare answers to parliament on matters pertaining to FDD regulations sanctioned by the Governor-in-Council. Through this democratic process he is responsible to the electorate. Furthermore the validity of any regulation is subject to challenge in the courts in an appeal of a prosecution.

The Directorate has maintained excellent communications with the food industry and consumer groups throughout the years and welcomes as well representations made by various professional groups. Any proposal from such groups is carefully considered.

With the creation of the Department of Consumer and Corporate Affairs, responsibilities of the Food and Drug Directorate pertaining to economic fraud and labelling were transferred to this new department. The detailed functions of both departments are described in Trade Information Letter No. 319 (Appendix I).

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BASIC REGULATIONS ON FOOD PRODUCTS

The Department of Consumer and Corporate Affairs is responsible for the labelling and advertising of foods under the authority of the Food and Drugs Act and Regulations. The Food and Drug Directorate acts in an advisory capacity in developing labelling and advertising regulations when there is a health significance.

Mandatory Information Required On Food Labels

- the brand name, if any
- the common name of the food
- a correct declaration of the net contents in terms of weight, volume or number in accordance with the usual practice in describing the food except for food products weighing less than two ounces
- the name and address of the manufacturer of the food
- a declaration of any Class II, III or IV preservative or food colour used in the preparation of the food

from Food and Drug Regulations, B.01.004

"No person shall label, package, treat, process, sell or *advertise any food,* in a manner that is *false, misleading* or *deceptive* or is likely to create an erroneous impression regarding its character, value, quantity, composition, merit or safety," Section 5, part 1, Food and Drugs Act.

Labelling Regulations

It is the objective of the Food and Drug Directorate and the Department of Consumer and Corporate Affairs to obtain a more complete listing of ingredients on food labels in the near future. It is felt the consumer not only has the right to know what he is buying but in many instances needs to know what ingredients are present in a food product to prevent known allergic reactions.

Listing of ingredients on food labels

For the purpose of these regulations, foods are divided into two categories.

*Standardized foods**

These comprise approximately 300 items and do not carry a list of ingredients on their labels. However FDD has established a standard of composition for these products and the list of ingredients they must or may contain appears in the Food and Drug Regulations.

Unstandardized foods

All other food products come under this classification. By regulation, unstandardized foods must carry a listing of ingredients on their labels in descending order of proportion.

Exceptions to the above rules

In spite of compliance with a standard of composition many standardized foods are required to list specified ingredients on their

*Standardized foods are listed in appendix II

labels. For example, food colours and certain preservatives must be declared whenever they are used except as follows:

The presence of food colour is not declared on the label of the following foods:

- Bakery products (except brown bread)
- Butter
- Cheese and process cheese
- Confectionery
- Gelatine desserts
- Ice Cream — ice milk
- Icing sugar
- Liqueur, alcoholic cordials
- Sherbet
- Smoked fish
- Soft drinks
- Flavoured dairy drinks
- Flavoured malted milk
- Flavoured milk
- Flavoured skim milk

The presence of caramel as a food colour is not declared on the label of the following foods:

- Non-excisable fermented beverages
- Sauces
- Spirituous liquors except gin
- Vinegar except spirit vinegar or blends with spirit vinegar
- Wine

On the other hand the following unstandardized foods are at present (1970) exempted from the requirement that all ingredients be listed on the label:

- Bakery products
- Black pudding
- Blood pudding
- Confectionery
- Flavouring preparations
- Gelatine desserts
- Non-nutritive seasoning sauces
- Pastry and pickling spices
- Poultry seasoning
- Synthetic colours
- Soft drinks
- White pudding

Advertising

General regulations

The label or any other written material accompanying a product to be sold are considered as part of advertisement. Unfortunately this does not prevent the sale of books or magazines promoting fads or giving misleading nutritional information.

It should be noted that in border areas many Canadians receive television and radio broadcasts directly from the U.S.A. over which we have no authority.

General nutritional claims

The following are considered misleading:

- Claims pertaining to or based on an ingredient present in a food when a R.D.I.* of that food contains an insignificant amount of the selected ingredient, i.e. honey as a good source of a vitamin.
- The use of dietary standards or results of dietary surveys as related to dietary standards as promotional material.
- The selection of favourable references on controversial issues, with no indication that equally competent authorities are not in agreement.

Food and disease

No claims relating to the treatment, cure or prevention of the diseases or disorders listed in Schedule A* are tolerated on labels and in advertising.

Food vs energy

The lay concept of energy, that is, having pep, vitality, vigor, strength or endurance should not be stressed in food advertisements. Whenever a reference is made to "food energy" it should be in the nutritional sense, e.g. calories.

"Balance"

This concept relates to the diet as a whole or to the habitual food pattern. Although a single food may contribute to the establishment of this balance it is not in itself responsible for the nutritional balance and thus should not be represented as such.

Protein claims

The term PROTEIN

- may be used in the list of ingredients when protein is used in the formulation: e.g. hydrolyzed vegetable protein.
- can be used to state the amount of protein, fat and carbohydrate in a food.

*Reasonable Daily Intake page 12

*Schedule A page 24

FDD has developed criteria to form a basis for judging advertising claims. "High quality protein" and "Good" or "Excellent dietary source of protein" can be used if

"Excellent (dietary) source of protein"

if the protein rating is not less than 40 in a R.D.I. for a food prepared especially for children the protein rating should be 20 in a R.D.I.

"A Good (dietary) source of protein"

if the protein rating is not less than 20 in a R.D.I. of that food.

Protein rating

Protein rating is one way of estimating the nutritive value of proteins as part of the daily diet. FDD considers three factors in determining the protein rating of a food:

- the amount of the food consumed in a R.D.I.
- the percentage of protein in the food
- the nutritive value of the protein as determined by the protein efficiency ratio (P.E.R.) *

These three factors are summarized in the following formula

P.E.R. $\times$ grams of protein in R.D.I. = Protein Rating.

For instance the P.E.R. of the egg protein is 3.8 and a reasonable daily intake of eggs (2 eggs or 100 g.) will provide 12.8 g. of protein. Therefore the protein rating for eggs is

$$3.8 \times 12.8 = 48.6$$

Eggs are thus claimed to be an excellent source of protein because their rating is above 40.

A food with a rating below 20 does not contribute significant amounts of protein to the diet and it is considered misleading to attach any special significance to its protein content or to use it in any way as the basis of advertising claims.

Protein rating method is used to judge the validity of claims for labelling and advertising but this method is not intended to be used in evaluation of diets.

*P.E.R. Protein efficiency ratio, method of protein evaluation defined as the weight gain in grams of a growing rat divided by the grams of protein consumed in a standardized 4 week assay.

Claims regarding the functions of proteins

The following claims may be made only if the food is described on the label as an "excellent" or "good" dietary source of protein:

- proteins help children grow
- proteins help provide food energy
- proteins are needed for the renewal and maintenance of the body tissues.

PROTEIN RATING OF CERTAIN FOODS

Food	R.D.I. grams	Protein in R.D.I. grams	P.E.R.	Protein Rating
Cabbage	50	0.7	0.9	0.6
Whole wheat	30	3.0	1.5	4.5
Wheat germ	5	1.8	2.6	4.6
Rolled oats	30	3.8	2.1	8.0
White bread	150	12.6	1.0	12.6
Soybeans	30	10.5	2.3	24.1
Cheese	60	18.6	2.3	43.2
Whole egg	100	12.8	3.8	48.6
Beef	100	21.0	3.2	67.2
Whole milk	708	24.8	2.8	69.4
Whole wheat bread	150	15.5	1.1	17.1
"Protein" bread	150	17.7	1.3	23.0
Rolled oats plus milk (1:4)	150	8.0	3.2	25.6
"Protein" cereal	30	6.0	0.03	0.2
"Protein" cereal plus milk (1:4)	150	10.0	2.0	20.0

TABLE 1 PERMITTED VITAMIN CLAIMS

	Min. in R.D.I. Excellent Source	Min. in R.D.I. Good Source	Min. in R.D.I. for Specific Claims	SPECIFIC CLAIMS
Vitamin D (I.U.)	300		300	Factor in the normal development and maintenance of bones and teeth, especially in infancy and childhood Factor in the maintenance of good health
Vitamin A (I.U.)	1200	600	1200	Factor in the maintenance of good health
Thiamine (mg)	.45	.25	.45	Factor in the maintenance of good health
Riboflavin (mg)	.75	.4	.75	Factor in the maintenance of good health
Niacin (mg)	4.5	2.5	4.5	Factor in the maintenance of good health
Vitamin C (mg)	15	7.5	15	Factor in the normal development and maintenance of bones, cartilage, teeth and gums Factor in the maintenance of good health

TABLE 2 PERMITTED MINERAL CLAIMS

	Min. in R.D.I. Excellent Source	Min. in R.D.I. Good Source	Min. in R.D.I. for Specific Claims	SPECIFIC CLAIMS
Calcium (mg)	300	150	300	Factor in the normal development and maintenance of bones and teeth, especially in infancy and childhood Factor in the maintenance of good health
Phosphorus (mg)	300	150	300	Factor in the normal development and maintenance of bones and teeth, especially in infancy and childhood Factor in the maintenance of good health
Iron (mg)	4	2	4	Factor in the prevention of iron deficiency Factor in the maintenance of good health

Vitamin and mineral claims

The basic principle of the vitamin regulations is to prevent exploitation.

The section on enrichment indicates the regulations dealing with fortification of certain foods.

Guaranteed satisfaction

No assurance regarding results to be obtained from the addition of vitamins or minerals to the diet may be given in the advertisement of a food and no testimonial may be quoted or reproduced for this purpose.

"Excellent" or "Good" source of vitamin or mineral

The use of these terms is restricted to foods with a *naturally occurring vitamin or mineral* content. In such a case the claim "excellent" or "good" dietary source is permitted if a R.D.I. of that food provides the amount of vitamin or mineral specified in Table 1 and Table 2.

Claims for foods which are natural sources of a vitamin or a mineral

If a R.D.I. of a food provides a certain minimum amount of vitamin or mineral, specific claims can be made regarding that vitamin or that mineral as stated in Table 1 and 2.

A label statement, as to the presence of a vitamin or a mineral in a food intended solely for children under two years of age, can be made only if a reasonable daily intake of the food will provide the following minimum amount of the specified nutrient:

vitamin A	600 I.U.	pyridoxine	.25 mg
thiamine	.25 mg	calcium	150 mg
riboflavin	.4 mg	phosphorus	150 mg
niacin	2.5 mg	iron	2 mg
ascorbic acid	7.5 mg	iodine	.05 mg

Claims for vitamin or mineral enriched foods

In the advertising or labelling of an enriched food a statement can be made indicating the nutrient which has been added and the quantity.

Claims regarding the "saturation" of fats and oils

What claim is permitted?

The only claim permitted in the advertisement and labels of fats and oils is a statement of the percentage by weight of polyunsaturated and saturated fatty acids in the total fats. Such a statement can be made provided the saturated fatty acids do not exceed 20%, and the polyunsaturates comprise at least 40% of the fat if it is in an oil, or at least 25% of a margarine, shortening or similar product.

Percentage of fatty acids in total fat required to make a claim regarding the "saturation" of a product.

	Oil	Margarine
Cis-methylene interrupted polyunsaturated fatty acids	At least 40%	At least 25%
Saturated fatty acids	No more than 20%	No more than 20%

How should the claim be made?

The declarations must

- be grouped together
- be given equal prominence
- clearly refer to total fat

e.g. 27% polyunsaturated fatty acid
18% saturated fatty acid

What about the cholesterol?

Any other reference to fatty acids or cholesterol is prohibited.

When buying an oil

Two guidelines can be used in selecting an oil high in polyunsaturated fats: look for the kind of oil recommended or for a declaration pertaining to the saturation of the product.

The label of salad or table oil must indicate the kind of oil contained in the product and may carry a declaration as to percentage of saturated and polyunsaturated fatty acids present if the product meets the specifications stated above.

Choosing a margarine

To select a margarine containing a significant amount of polyunsaturated fats, look for the declaration which indicates the percentage of polyunsaturated and saturated fatty acids.

Substitute foods

There are no specific rules controlling the introduction of substitute foods or meal replacements on the market and each case is treated separately.

As was mentioned previously, FDD has maintained excellent relations with the food industry over the years. It is customary for the food industry to submit to FDD, proposals for the marketing of new foods in Canada. As FDD officers monitor the trends on the U.S.A. market very often they can foresee new developments.

Upon receipt of data pertaining to a new substitute food, the information is reviewed to determine if sale of the product will contribute any short or long range health problems to Canadian consumers. However when a substitute food is designed to replace a basic food in the Canadian diet, FDD demands a nutritional value similar to that of the natural food it intends to replace. This was the principle followed in outlining specific regulations for breakfast and milk substitutes, two instances where a nutritionally inferior product could constitute a health hazard for a certain percentage of the population. When new legislation is required the procedure followed is as described on page 4 of this booklet.

The name of a substitute food is also subject to regulation as clear identification of the product is important to avoid confusion with natural food.

A Substitute Food Regulation

B.01.053 No person shall sell a product represented as ready breakfast or instant breakfast or by any similar designation unless each portion or serving of the product contains

a. not less than 4.0 mg iron;
b. vitamin A, thiamine, riboflavin, niacin or niacinamide and vitamin C;
c. a good dietary source of protein; and
d. where consumed as directed, not less than 300 calories.

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Trade Information Letters
No. 295 Claims Pertaining to the Fatty Acid Content of Foods
No. 310 Declaration of Ingredients on Food Labels

THE REASONABLE DAILY INTAKE

The reasonable daily intake (R.D.I.) is a measure that serves as a term of reference in FDD regulations, to evaluate, for legislative purposes, the nutritional value of foods within the daily Canadian diet. When the vitamin and mineral regulations were promulgated, minimum and maximum values for the enrichment of foods were also given in terms of the R.D.I.

For instance, a food (butter) may be described as a good or an excellent source of a vitamin depending on the amount of this vitamin that is present in a R.D.I. It is therefore logical to use the same standard to determine how much of a certain vitamin can be added to a substitute for this food (margarine) and thus facilitate comparison.

The R.D.I. for most foods is considered to be one average serving. However in the case of foods such as milk, bread, butter, where several servings may be consumed daily, an attempt has been made to estimate what can be regarded as a reasonable intake considering the food habits of Canadians.

In the case of foods for which there is a wide range of intake the R.D.I. is usually higher than the average daily intake of the whole population. In such case the R.D.I. is an attempt to evaluate what is a reasonable intake among the population group where this food is most popular. For instance the average daily intake of milk for children, teenagers and adults will vary greatly. Therefore, in an attempt to approximate reality, the R.D.I. for milk will take into consideration the reasonable daily intake of milk among milk drinkers.

It is important to distinguish the R.D.I. concept from that of a recommended daily intake or Canada's Food Guide. The R.D.I. is oriented more in terms of what one may expect an individual to eat daily rather than the amount considered desirable by nutrition experts. Studies of eating patterns of certain groups of the Canadian population have shown that food habits may be quite different from Canada's Food Guide and still provide all necessary nutrients daily. Our food enrichment policy has then been established in relation to an approximation of the amount of food consumed daily that is looked upon as being "reasonable."

One should keep in mind the objectives of the regulations concerning nutritional claims and food enrichment when looking at the R.D.I. Although the R.D.I. at the present is a non-scientific measure, in most instances it has proven efficient for legislative purposes.

Table 3 REASONABLE DAILY INTAKE FOR VARIOUS FOODS

Name and Description	R.D.I. Imperial Measure	R.D.I. Metric Measure
Alimentary Pastes, dry	3.0 oz.	85 g.
Beverage Bases and Mixes, Flavoured, for Addition to Milk — Ready to Serve	16.0 fl. oz.	454 ml
Bread, 5 slices	5.3 oz.	150 g.
Butter	2.0 oz.	57 g.
Buttermilk	8.0 fl. oz.	227 ml
Cereals, Breakfast or Infant	1.0 oz.	28 g.
Cereals, Puffed	0.5 oz.	14 g.
Cheese	2.0 oz.	57 g.
Cheese, cottage	3.5 oz.	100 g.
Chocolate Drink, Chocolate Milk	30.0 fl. oz.	852 ml
Concentrated Milk, Concentrated Skim Milk (reconstituted and ready to serve)	30.0 fl. oz.	852 ml
Condensed Milk	15.0 fl. oz.	426 ml
Cream, Whipping	2.0 oz.	57 g.
(naming the flavour) Dairy Drink	30.0 fl. oz.	852 ml
Evaporated Milk, Evaporated Skim Milk	15.0 fl. oz.	426 ml
Fish or Shell Fish	3.5 oz.	100 g.
Fruits, Dried	2.0 oz.	57 g.
Fruits (other than named fruits)	3.5 oz.	100 g.
Banana	5.0 oz.	150 g.
Lemon	1.8 oz.	50 g.
Lime	1.8 oz.	50 g.
Watermelon	7.0 oz.	200 g.
Fruit Drinks and Nectars, ready to serve	4.0 fl. oz.	114 ml
Fruit Drink Bases, Mixes and Concentrates (ready to serve)	4.0 fl. oz.	114 ml
Fruit Juices (other than lemon juice and Lime juice)	4.0 fl. oz.	114 ml
Lemon Juice	1.0 fl. oz.	28 ml
Lime Juice	1.0 fl. oz.	28 ml
Ice Cream, Ice Milk	3.5 oz.	100 g.
Infant Formulas, Prepared ready to serve	as directed by label	
Instant Breakfast, Ready Breakfast ready to serve	as directed by label	
Margarine	2.0 oz.	57 g.
Meat or Prepared Meat	3.5 oz.	100 g.
Meat Substitutes	3.5 oz.	100 g.
Milk, Whole	30.0 fl. oz.	852 ml
Milk Powder (Reconstituted and ready to serve)	30.0 fl. oz.	852 ml
Modified Skim Milk	30.0 fl. oz.	852 ml
Molasses, Table or Blackstrap	1.5 oz.	43 g.
(naming the flavour) Milk	30.0 fl. oz.	852 ml
Nuts	1.0 oz.	28 g.
Peanut Butter	1.0 oz.	28 g.
Poultry meat or Prepared Poultry Meat	3.5 oz.	100 g.
Skim Milk, Partly Skimmed Milk	30.0 fl. oz.	852 ml
(naming the flavour) Skim Milk	30.0 fl. oz.	852 ml
Skim Milk Powder, Partly Skimmed Milk Powder (Reconstituted and ready to serve)	30.0 fl. oz.	852 ml
Soup — ready to serve	7.0 fl. oz.	200 ml
Sterilized Milk	30.0 fl. oz.	852 ml
Vegetables (other than named vegetables)	3.5 oz.	100 g.
Beans, baked	8.5 oz.	250 g.
Potatoes, cooked	7.0 oz.	200 g.
Water Cress	0.5 oz.	14 g.
Yeast, bakers	0.5 oz.	14 g.
Yogurt, plain	5.0 fl. oz.	150 g.

ENRICHMENT OF FOODS

Addition of certain nutrients to foods has been permitted in Canada for nearly a quarter of a century. A nutrition survey conducted in Newfoundland in 1944 revealed evidence of widespread vitamin deficiencies on the island. The government of Newfoundland quickly enacted laws making mandatory the enrichment of white flour with B vitamins. Because of evidence that calcium and iron were also in short supply in the Newfoundland diet, these two minerals were added to flour. A second survey, conducted in 1948, showed a general improvement in the nutritional status of Newfoundlanders. When the island joined Canada in 1949, it was decided to amend the Food and Drug Regulations to permit voluntary enrichment of white flour and bread with thiamine, riboflavin, niacin and iron.

This action outlines the two characteristic features of the early enrichment policy followed by FDD: addition of nutrients to foods was permitted to correct or alleviate a real or potential nutrient deficit and the addition was optional.

Later, industry showed a growing interest in the addition of nutrients to foods. It was suspected that vitamins and minerals were sometimes used as promotional tools rather than to satisfy the nutritional needs of the population. Controls were thus introduced by FDD to prevent fraudulent claims based on an insignificant amount of a vitamin in a food and the danger of potential overdoses if too many enriched products were made available.

These regulations required that nutrients could be added only to certain foods and in stated amounts.

Regulations on Food Enrichment

It has been FDD policy to allow or to make mandatory the enrichment of a food when there is a nutritional justification for it:

- a case of insufficient intake of a nutrient, as iodine in table salt
- when a product replaces a meal or a food normally an important source of essential nutrients in the Canadian diet, as margarine, breakfast substitutes.

- when a vitamin or a mineral is removed from a staple food in the course of good manufacturing practice, as flour.
- When there is nutritional justification, a food can be fortified if it is a suitable vehicle for a particular nutrient and if it reaches the people who need it.
- When a food is enriched the amount of vitamin or mineral added to it must be stated on the label.

To make this enrichment meaningful and to prevent an excess, FDD states for certain nutrients the minimum and maximum amounts which may be added to a R.D.I. of a food. The lower limits represent approximately ⅔ of the daily requirement and the upper limits vary from once to twice the daily requirement. Table 4 presents the list of foods that can be enriched and indicates the nutrients which may be added to those products. Table 5 specifies the minimum and maximum amount of nutrients that may be added to a R.D.I. of the foods as listed in Table 4. Table 6 gives the list of nutrients that may be added to foods according to Table 4 but for which no general quantitative limits have been established. Enrichment is mandatory for table salt and breakfast substitutes. Enriched bread and enriched flour must contain the amount of nutrients stated in Table 4.

Need for Enrichment of Foods in Canada

As more knowledge is gained on the nutritional status of Canadians some modification of the actual enrichment regulations will likely be considered. For instance, recent research conducted by FDD Nutrition Research Division, has indicated that almost a third of the Canadian population over 10 years of age may have insufficient stores of vitamin A. This finding has focused attention on the possible need to provide for more foods enriched with vitamin A and to encourage food manufacturers to make more effective use of the present regulations that permit the addition of vitamin A to margarine, skim milk and partially skimmed milk.

Another current problem in Canada is the occurrence of rickets among infants and young children who are not receiving vitamin supplements and are fed on fluid milk formula. Vitamin D enrichment of fluid milk is not mandatory and consequently the availability of vitamin D enriched milk varies greatly in different provinces and cities.

The appearance of new foods and a change in the eating habits of many North Americans, may bring about new nutritional problems. Snack foods constitute an ever increasing percentage of the food intake, the three meal a day pattern is becoming obsolete among certain groups and daily homecooking is slowly disappearing. Such trends would be considered in a reevaluation of the enrichment policy.

Points to Stress in Nutrition Education

- How to recognize enriched foods and how to select them wisely.
- Vitamins present in enriched foods have the same biological value as vitamins naturally occurring in foods.
- If an authorized enriched food is not offered in your region, ask for it.

U.S.A. Legislation on Enrichment

In some cases the American legislation pertaining to vitamin and mineral enrichment of certain foods differs from the Canadian regulations and proper adjustment should be made when using American Food tables to calculate the nutritive value of a product. The comparative value of the cereal Special K in both Canada and the U.S.A. offers a good example of this fact.

COMPARATIVE VALUE OF SPECIAL K

	Thiamine	Riboflavin	Niacin	Iron	Calcium
1 oz. U.S.A.	.330 mg	.390 mg	3.30 mg	3.3 mg	12 mg
1 oz. Canada	.6 mg	1.0 mg	6.0 mg	3.5 mg	12 mg

In addition the U.S.A. product contains added lysine, vitamin C, pyridoxine, B_{12} and vitamins A and D.

TABLE 4 FOODS TO WHICH A VITAMIN, MINERAL NUTRIENT OR AMINO ACID MAY BE ADDED

Food	Vitamin, Mineral Nutrient or Amino Acid	Limits
Breakfast cereals	Thiamine, niacin or niacinamide, riboflavin, iron.	As stated in Table 5.
Fruit nectars, fruit drinks and bases, concentrates and mixes for fruit drinks	Vitamin C.	As stated in Table 5.
Infant cereal products	Thiamine, niacin or niacinamide, riboflavin, iron, calcium, phosphorus, iodine.	As stated in Table 5.
Margarine and other similar substitutes for butter	Vitamin A, vitamin D.	As stated in Table 5.
Alimentary pastes	Thiamine, niacin or niacinamide, riboflavin, iron.	As stated in Table 5.
Prepared infant formulæ	Vitamin C, vitamin A, vitamin D, vitamin B_{12}, thiamine, riboflavin, niacin or niacinamide, pyridoxine, folic acid, vitamin E, d-pantothenic acid, iron, iodine, calcium, phosphorus, sodium, potassium, copper, magnesium, manganese, zinc, lysine, methionine, tryptophane.	As stated in Table 5.
Flavoured beverage mixes and bases recommended for addition to milk	Vitamin A, thiamine, niacin or niacinamide, vitamin C, iron.	As stated in Table 5.
Foods represented as meat substitutes	Lysine, methionine.	No quantity specified.
Ready breakfast, instant breakfast and other similar breakfast replacement foods however described	Vitamin A, thiamine, riboflavin, niacin or niacinamide, vitamin C, iron.	As stated in Table 5.
Condensed milk, milk, milk powder, sterilized milk	Vitamin D.	As stated in Table 5.
Modified skim milk, modified partly skimmed milk, and flavoured milk described in section B.08.016, chocolate drink, any flavoured dairy drink described in section B.08.023, skim milk, partly skimmed milk, partly skimmed milk powder, skim milk powder, any flavoured skimmed milk described in section B.08.026	Vitamin A, vitamin D.	As stated in Table 5.

Food	Vitamin, Mineral Nutrient or Amino Acid	Limits
Evaporated milk B.08.027 and B.08.010	Vitamin C, vitamin D.	As stated in Table 5 for vitamin D. The minimum amount of vitamin C should be 60 mg in a R.D.I.
Evaporated skim milk, concentrated skim milk, evaporated partly skimmed milk, concentrated partly skimmed milk. B.08.027 and B.08.011	Vitamin C, vitamin A, vitamin D.	As stated in Table 5 for vitamin A and D. The minimum amount of vitamin C should be 60 mg in a R.D.I.
Apple juice, reconstituted apple juice, grape juice, reconstituted grape juice, pineapple juice, reconstituted pineapple juice, concentrated fruit juice, apple and any juice described in section B.11.132	Vitamin C.	As stated in Table 5.
Enriched flour B.13.002	Thiamine, niacin or niacinamide, riboflavin, iron, calcium.	B.13.002, one pound of enriched flour shall contain not less than / not more than thiamine 2.0 mg / 2.5 mg riboflavin 1.2 mg / 1.5 mg niacin 16.0 mg / 20.0 mg iron 13.0 mg / 16.0 mg and may contain calcium 500.0 mg / 650.0 mg
Enriched vitamin B white flour B.13.004	Thiamine, niacin or niacinamide, riboflavin, iron.	Same as above except no calcium added.
Table salt, table salt substitutes	Iodine.	.01% KI
Enriched bread B.13.022	Nutrients come from the enriched flour that must be used in the making of enriched bread.	One pound of enriched bread shall contain not less than / not more than thiamine 1.1 mg / 2.4 mg riboflavin .8 mg / 1.8 mg niacin 10.0 mg / 15.0 mg iron 8.0 mg / 12.5 mg

TABLE 5 QUANTITATIVE LIMITS FOR THE ADDITION OF CERTAIN NUTRIENTS TO FOODS

Nutrient	Minimum in a R.D.I.	Maximum in a R.D.I.	Minimum in a R.D.I. if food is intended for children under 2
Vitamin A	1600 I.U.	2500 I.U.	1000 I.U.
Vitamin D	300 I.U.	400 I.U.	300 I.U.
Vitamin E		15 I.U.	5 I.U.
Vitamin C	20 mg	60 mg	20 mg
Thiamine	.6 mg	2 mg	.4 mg
Riboflavin	1.0 mg	3 mg	.6 mg
Niacin	6.0 mg	20 mg	4.0 mg
Pyridoxine		1.5 mg	.6 mg
Calcium	300 mg	—	—
Phosphorus	300 mg	—	—
Iron	4 mg	—	—
Iodine	.10 mg	—	—

TABLE 6 NUTRIENTS THAT CAN BE ADDED BUT FOR WHICH NO QUANTITATIVE LIMITS HAVE BEEN SET

Sodium	d-pantothenic acid	lysine
Potassium	folic acid	methionine
Zinc	biotin	
Copper	vitamin B_{12}	
Magnesium	vitamin K	
Manganese		

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Vitamin A
Vitamin Enriched Milk Urged

FOODS FOR SPECIAL DIETARY PURPOSES

DISTINCTION

DIETETIC FOODS	NON-DIETETIC FOODS
Calorie reduced dressing	Fresh orange juice without added sugar
Artificially sweetened fruits	Unsalted nuts
Sodium reduced bread	Whole Wheat bread
Gluten free biscuits	Yogurt

MANDATORY LABELLING

Claim re:	Labelling must indicate amounts:
Carbohydrate, sugar, starch	g. CHO/100 g. or %
calorie	calories/100 g.
sodium	mg Na/100 g.

This section in our regulations reflects the ever growing concern of the Canadian public over the relation between foods, diet and disease and is presently under careful review. This field lends itself to the introduction of fraud and quackery for in every other pseudo health specialist lies a food expert and sometimes a business man.

The intent of these regulations has always been to prevent misleading advertising and to provide sound labelling in order to protect the individual, who, for health reasons, needs to follow a special dietary regime. The wording of claims and label statements allowed by FDD are quite specific.

Definition of dietetic foods or foods for special dietary purposes

These are the foods prepared or manufactured for specific dietary purposes by removing, at least in part, or by adding in larger proportions one or more constituents.

According to this definition a product cannot be described as "dietetic" unless it is a processed food which can be compared to some similar food product, found on the consumer's market, which is not prepared for a special dietary purpose. Products such as wheat germ or yogurt are not considered dietetic foods.

Mandatory labelling

The following information must appear on the label:

- the type of diet for which the food is suited, e.g. carbohydrate restricted, calorie restricted, sodium restricted, etc.
- whenever there is a claim made relating to the carbohydrate, sodium or calorie content of a food the amount of these nutrients present must be expressed as shown on the opposite column.
- declaration of the presence of food additives: e.g. sodium benzoate, saccharin, etc.
- if the dietetic food is not a standardized food, the list of ingredients in descending order of proportion.

Permissible labelling

Food analysis

A manufacturer may disclose partial or total analysis of a product for the consumer's convenience. Thus many dietetic food labels carry information about the protein, fat and calorie content of the food.

Comparison

Direct comparisons may be made pertaining to the calorie, carbohydrate or sodium content of a dietetic food, as outlined:

- with the food for which it is a substitute
- only specific comparisons are acceptable
- comparisons must always be valid, informative and based on equal weights of the compared foods. Comparisons of slices or bowlfuls of any volume of food are considered misleading unless an equal volume has the same weight

Foods which meet our criterion for "sugarless" may be described as "non cariogenic" or by a synonymous term.

Unacceptable labelling

- It is considered misleading to emphasize the amount of sodium, carbohydrate or calories provided by a food when the food is not dietetic or low in sodium, carbohydrate or calories by nature.
- The Food and Drugs Act forbids advertising food as a treatment or cure for certain diseases. These are listed on page 24.
- An advertisement or label should not imply that the food itself has any weight reducing properties.*
- Contradictory claims are not permitted, e.g. food energy claims for calorie reduced foods.
- When a food for a special dietary purpose is a substitute for a food (ketchup) for which a standard exists in the Food and Drug Regulations, it may not be referred to as "Diet or Dietetic (ketchup)", unless the special product meets that particular standard in all respects. Another acceptable name must be found for the food which does not suggest that the product meets the standard, e.g. tomato condiment, and in addition phrases such as "use as (ketchup)" "use in place of (ketchup)" may be used.

Example of acceptable and non-acceptable labelling

ACCEPTABLE
Calorie Reduced Peanut Butter
Half the calories of peanut butter

NON-ACCEPTABLE
Calorie Reduced Peanut Butter
Half the calories of jam

ACCEPTABLE
Golden Spread
Half the calories of butter

NON-ACCEPTABLE
Golden Spread
Less calories than butter

NON-ACCEPTABLE
Maple Cured Bacon
only xxx mg/sodium per slice

*See page 24 for regulations pertaining to reducing plans

Specifications for claims related to carbohydrate content of foods

Foods *recommended* for carbohydrate or sugar restricted diets

- should provide on a *weight basis* no more than 50% of the glycogenic carbohydrates found in a food of the same class for which it is a substitute
- in the case of confectionery and puddings, the reduction in glycogenic carbohydrate need only be 30%, otherwise it is very difficult to produce a palatable product.

Foods *defined* as sugarless, sugar free, or low carbohydrate

- must contain no more than 0.25 per cent of glycogenic carbohydrate

Made without sugar

- This is an acceptable claim for any food if it is true. However, when a food contains more carbohydrate than the comparable normal food, even though no sugar has been added, this claim is considered misleading.

Mannitol and sorbitol

- In calculating the carbohydrate exchange values, the hexitols or sugar alcohols such as mannitol and sorbitol, are not considered by FDD as glycogenic carbohydrates because of their slow absorption rate.

Specifications for claims related to the caloric content of foods

Foods *recommended* for calorie reduced diets

- should provide on a weight basis no more than 50% of the calories found in a food of the same class for which it is a substitute, in the case of bakery products this reduction need only be limited to 25%

Foods *defined as* low calorie or synonymous claims

- should supply not more than
  15 calories per average serving
  and
  30 calories in a R.D.I.

Hexitols

The caloric value provided by hexitols is an integral part of the total energy value of a food and should be taken into account in any declaration concerning the caloric content of that food.

Food caloric value mannitol — 2 calories/gram
Food caloric value sorbitol — 4 calories/gram

Non Caloric, Non Fattening

These terms may be applied to ingredients and foods that do not contribute any calories to the diet.

Specifications for claims related to sodium content of foods

Foods *recommended* for a sodium restricted diet

The sodium content of a food (expressed in mg) recommended for a sodium restricted diet shall not exceed 1/6 of the caloric content of this food in a R.D.I. When this regulation was established it was assumed the average sodium restricted diet was of the order of 500 mg Na and the average caloric intake 3000 calories per day. Therefore this Na/calorie ratio of 1/6 would permit the average patient on a sodium restricted diet to use liberally foods recommended for sodium restricted diets. This regulation is currently under review.

Foods *described* as low sodium

Should supply no more than
10 mg Na in an average serving
and
20 mg Na in a R.D.I.

"Salt free" Label Statement

A food described as "salt free" or "saltless" must be free of sodium salts such as sodium chloride, sodium benzoate or monosodium glutamate, etc.

"Made without salt" or "No salt added" — Label Statements

Acceptable claims if true and the product normally contains salt. Here again this claim would be considered misleading if the statement was made on the label or advertisement of a food containing as much sodium as the food for which it is a substitute despite the fact that no extra salt was added.

Synthetic Sweeteners

Principles underlying FDD Regulations regarding the use of artificial sweeteners

Keeping in mind that the underlying concern of FDD is the health protection of Canadians:

- It is necessary to ensure that long term consumption of artificial sweeteners does not exceed a level considered safe.
- It is also desirable to provide a good variety of foods for that large portion of the population who, for some therapeutic reason, must avoid certain ordinary foods.
- It must be remembered however that sugar contributes to the energy value of foods which consumers are entitled to obtain when they buy ordinary foods as opposed to foods prepared for special dietary purposes.

FDD Regulations pertaining to the use of synthetic sweeteners

- The substances falling into this category, which may be used in Canada are: saccharin and its ammonium, calcium and sodium salts, cyclohexyl sulphamic acid and its calcium, magnesium, potassium and sodium salts. The salts of cyclohexyl sulphamic acid are also known as cyclamates.
- Saccharin is allowed only in dietetic foods and sugar substitutes and its presence must be indicated on the label.
- Cyclamates can be used strictly in sugar substitutes and should be taken under a physician's advice.

Safety of artificial sweeteners

In 1967 the Joint FAO/WHO Expert Committee on Food Additives established a temporary A.D.I. (acceptable daily intake) for cyclamates at the level of 50 mg/kg body weight. This temporary A.D.I. was projected for three years and within this time additional studies were required. At that time FDD accepted this recommendation as reasonable in the light of all the available evidence.

The A.D.I. meant that a person weighing 60 kg (132 pounds) could ingest 3 g. of cyclamate daily over an indefinite period without being exposed to an appreciable risk.

In the late sixties, low calorie soft drinks constituted the major source of cyclamates on the Canadian market. The average amount of cyclamates in these beverages was approximately 375 mg per 10 ounces. Therefore a 60 kg (132 pounds) adult and a 25 kg (55 pounds) child would have had to consume respectively 80 ounces and 34 ounces of low calorie soft drinks to exceed the FAO/WHO acceptable daily intake.

However, in October 1969, new scientific evidence revealed that massive doses of cyclamates administered to rats over a life time period produced tumours. The data showed that rats given 2500 milligrams of cyclamates per kilogram of body weight for 104 weeks developed cancerous tumours of the bladder.

On a body weight basis, a 150 pound man would have to drink approximately 500 eight-ounce bottles of a soft drink containing cyclamates each day during his entire life to consume the same amount of cyclamates.

Although no evidence revealed harmful effects attributed to the intake of cyclamates in man, it was considered prudent to phase

out the use of cyclamates in special dietary foods and to limit its use to sugar substitutes.

It is expected there will be a greater demand for saccharin which has been used for more than 75 years and has been subjected to numerous studies. FDD has given top priority to long term studies on saccharin but in the light of present evidence considers that its use in dietetic foods does not constitute a danger to health.

Dietary supplements considered as drugs

Reducing plans and various dietary supplements may be considered drugs by FDD.

The regulations controlling the labelling of drugs require the disclosure of indications for use and a quantitative list of ingredients on the label. Also, a new drug submission would have to be filed with the Directorate before any such new product could be introduced on the market. Substantial evidence as to the effectiveness of this new drug would have to accompany this submission.

In Canada, the importation, advertisement or sale to the general public of any food, drug, cosmetic or device as a treatment, preventive or cure for any disease listed in Schedule A is prohibited.

The sale of reducing plans is permitted where lessened intake of calories is the method of weight reduction and where a food, drug, cosmetic or device is an adjunct to the plan, provided that no claims are made to the effect that the product itself takes off weight.

Reducing plans

PERMISSIBLE CLAIM
Take off pounds with Fade Away Reducing plan

NON-PERMISSIBLE CLAIM
Fade Away Pills will melt off fat

A claim should also emphasize that the weight loss is due to eating less and not only due to the drug product.

Schedule A Diseases

Alcoholism
Alopecia
Anxiety state
Appendicitis
Arteriosclerosis
Bladder disease
Cancer
Convulsions
Depression
Diabetes
Disease of the prostate
Disorder of menstrual flow
Dysentery
Edematous state
Epilepsy
Gall bladder disease
Gangrene
Glaucoma
Gout
Heart disease
Hernia
Hypertension
Hypotension
Impetigo
Influenza
Kidney disease
Leukemia
Liver disease
Nausea and vomiting of pregnancy
Obesity
Pleurisy
Pneumonia
Poliomyelitis
Rheumatic fever
Rheumatoid arthritis
Scabies
Septicemia
Sexual impotence
Tetanus
Thyroid disease
Tuberculosis
Tumour
Ulcer of the gastro-intestinal tract
Vaginitis
Venereal disease

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Eleventh Report of the Joint FAO/WHO Expert Committee on Food Additives

Material available from Educational Services
Tear Sheet
Special Foods for Reducing Diets
Fact Sheet
Questions and Answers on Artificial Sweeteners in Foods

FOOD ADDITIVES

Use of various food additive categories

Anticaking agents
Calcium aluminium silicate permitted in salt at the level of 1.0%. Magnesium stearate permitted in unstandardized dry mixes at G.M.P. level.

Bleaching, maturing and dough conditioning agents
Calcium peroxide permitted in bread at the level of 100 p.p.m. of flour. Potassium iodate permitted in unstandardized bakery foods at G.M.P. level.

Colouring agents
β-Apo-8′ carotenal permitted in sherbet at the level of 35 p.p.m. Citrus Red No. 2 permitted on the skin of whole oranges at the level of 2 p.p.m.

Emulsifying — gelling — stabilizing and thickening agents
Agar-agar permitted in ice cream at 0.5% level. Lecithin permitted in cocoa at the 0.5% level. Sodium phosphate dibasic permitted in cottage cheese at the 0.5% level.

Food enzymes
Catalase from aspergillus permitted in cheddar cheese at the level of 20 p.p.m. Invertase permitted in confectionery at G.M.P. level.

Glazing and polishing agents
Beeswax permitted in confectionery at 0.4 level.

Miscellaneous
Bead oil — antifoaming agent permitted in wine at 5 p.p.m. Magnesium silicate, dusting agent in chewing gum at G.M.P. level.

pH adjusting agents — acid reacting materials and water correcting agents
Citric acid permitted in unstandardized foods at G.M.P. level. Lactic acid permitted in cottage cheese at G.M.P. level.

Preservatives
Ascorbic acid permitted in preserved meat and poultry at G.M.P. level. Benzoic acid permitted in jam at the level of 1000 p.p.m.

Starch modifying agents
Sodium hydroxide permitted in starch at G.M.P. level.

Food Additives used as yeast foods
Ammonium chloride permitted in bread at the level of 2500 p.p.m. of the flour.

Until 1964, the control of chemical additives in our foods was based solely on the authority provided by one section of the Food and Drugs Act passed in 1953 which states "No person shall sell an article of food that . . . has in or upon it any poisonous or harmful substance."

However, early in the sixties it was realized more specific regulations concerning the use of food additives were needed. In order to make a decision on the acceptability of each compound, a vast amount of data was reviewed. Before drafting regulations, Government scientists consulted with trade associations and other interested groups. In 1964 new food additive regulations were promulgated.

What is a food additive?

According to FDD's definition a "food additive" means any substance, including any source of radiation, the use of which results, or may reasonably be expected to result in it or its by-products becoming a part of or affecting the characteristics of a food.

By FDD definition a food additive does not include:

- any nutritive material that is used, recognized or commonly sold as an article or ingredient of food
- vitamins, mineral nutrients and amino acids
- spices, seasonings, flavouring preparations, essential oils, oleoresins and natural extractives
- agricultural chemical residues
- food packaging materials and components thereof, and
- drugs recommended for administration to animals that may be consumed as food.

There are other regulations which govern the use of these products.

Specifications regarding food additives

The following requirements are set out in table form in Division 16 of the Food and Drug Regulations.

- Purpose of food additives
- Name of additives that can be used for that purpose
- Foods in which they are permitted
- The amount permitted

The regulations also stipulate that food additives used in a product must be declared on the label of all unstandardized foods. Provision is also made for the addition or deletion of compounds from the permitted list.

In considering the amounts of food additives which might be permitted in foods, it was found that in many instances there did not seem to be sufficient justification for setting a finite limit. However it did not seem desirable to simply permit these materials to be used in any amount. Therefore the tables state that such compounds can be used in accordance with "good manufacturing practice" (G.M.P.) that is "The amount . . . shall not exceed the amount required to accomplish the purpose for which that additive is permitted to be added to that food."

Categories of food additives

- anticaking agents
- bleaching, maturing and dough conditioning agents
- food enzymes
- emulsifying, gelling, stabilizing and thickening agents
- firming agents
- colouring agents
- glazing and polishing agents
- preservatives
- sequestering agents
- yeast foods
- starch modifying agents
- miscellaneous

Procedure for accepting a new food additive

The manufacturer must submit the following information to FDD:

- physico-chemical properties of the product — chemical name, its composition and specifications
- justification for use
- amounts to be used
- detailed reports of tests made to establish the safety of the food additive under the conditions of use recommended
- data to indicate residues that may remain in the finished food
- proposed maximum limit for residue of the food additive in or upon the finished food
- specimens of proposed labelling
- a sample of the food additive in the form in which it is proposed to be used and
- a sample of the active ingredient

Information that may be requested

a sample of the food containing the additive
an acceptable method of analysis suitable for regulatory purposes

Directorate's Function

evaluation of the above data
communication of the decision to manufacturers
amendment of regulations (additive tables) if necessary

Standards for Purity

Can be found in the Food Chemical Codex along with some relevant technical information.

Food colours

All regulations that apply to food additives apply to food colours as they constitute one category of food additives. However, because consumers often inquire about food colours it seems important to reaffirm that their use is carefully controlled.

Colours permitted in foods

	Tolerances	*Specifications*
natural colours	to be used according to G.M.P.	What colour can be used in what food
inorganic colours	to be used according to G.M.P.	
synthetic colours	specific for everyone in terms of p.p.m.	

Natural colours	*Inorganic colours*	*Synthetic colours*	
Annatto	Carbon black	Amaranth	Sunset Yellow FCF
β-Carotene	Charcoal	Erythrosine	Fast Green FCF
β-Apo-8'		Ponceau SX	Brilliant Blue FCF
Carotenal		Tartrazine	Benzyl Violet 4B
Canthaxanthin		Indigotine	Citrus Red No. 2

Under certain circumstances a colouring agent is not permitted
if its use could constitute a danger to health
if its use can become a means to disguise a poor quality food

Home use of food colours

Consumers should also be careful in using food colours at home. As a protective measure, Food and Drug Regulations specify that liquid preparations for use in or upon food shall be sold in containers having a 2 ounce capacity or less, which will only permit discharge of one drop at a time.

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1956 No. 107 — Report Series No. 11
Joint FAO/WHO Conference on Food Additives

1957 No. 129 — First Report
General Principles Governing the Use of Food Additives

1961 No. 220 — Fifth Report
Evaluation of the Carcinogenic Hazards of Food Additives

1962 No. 228 — Sixth Report
Evaluation of the Toxicity of a Number of Antimicrobials and Antioxidants

1963 No. 264 — Second Joint FAO/WHO Conference on Food Additives

1965 No. 309 — Eighth Report
Specifications for the Identity and Purity of Food Additives and their Toxicological Evaluation
Food Colours and Some Antimicrobials and Antioxidants

1966 No. 339 — Ninth Report
Specifications for the Identity and Purity of Food Additives and their Toxicological Evaluation
Some Antimicrobials, Antioxidants, Emulsifiers, Stabilizers, Flour-Treatment Agents, Acids and Bases

1967 No. 373 — Tenth Report
Specifications for the Identity and Purity of Food Additives and their Toxicological Evaluation
Some Emulsifiers and Stabilizers and certain other Substances

1968 No. 383 — Eleventh Report
Specifications for the Identity and Purity of Food Additives and their Toxicological Evaluation
Some Flavouring Substances and Non-nutritive Sweetening Agents

Material available from Educational Services
Fact Sheets
About Food Additives
Questions and Answers on Artificial Sweeteners
Health Safeguards in Food Packaging

PESTICIDES

Pesticides rank high in the list of technical innovations responsible for the increased productivity in agriculture. Their use parallels an equal improvement in the quality of agricultural products on the Canadian market.

Despite the claims of various alarmists, this progress has not been achieved at the expense of the health and safety of the Canadian consumer. The Food and Drug Directorate works in close cooperation with the Canada Department of Agriculture and other agencies, advising on the safe use of pesticides and monitoring the final food products which may be offered to the consumer.

Before a product can be sold by a manufacturer for use on a food crop or for use in an area where food may be handled or processed, the product must be registered by the Canadian Department of Agriculture. This involves a review of the product by the Food and Drug Directorate and, if necessary in the interest of the consumer, the conditions of use may be modified or a residue tolerance established. Such a residue tolerance may be considered as a safe level. The establishment of pesticide residue tolerances in or on food, intended for human consumption, was started in 1956 and today tolerances have been established for approximately 70 pesticides.

Procedure to determine tolerance level

The manufacturer's request

A tolerance for a given agricultural chemical is established at the request of the manufacturer.

The following information should accompany a request:

- Justification for the use of the product
- Evidence that the product is effective and practical for the purpose recommended
- The physico-chemical properties of the product
- The amounts to be applied and the frequency and time of application

- Full reports of investigations made to determine the safe levels
- The results of tests on the amount of residue remaining in or on the food crop and the description of a satisfactory analytical method for determining residues in or on the foods or classes of foods for which it was recommended
- A proposed tolerance

Review of data on toxicity studies Estimate A.D.I. in mg/kg.

The permissible dietary intake for man is usually established on the basis of the data obtained in chronic toxicity studies in animals. The starting point chosen is the maximum dose level that causes no deleterious effect in the most sensitive species.

This dose in animals, expressed in mg/kg of body weight, is divided by a large safety factor, usually 100. The value thus obtained is considered to be the "acceptable daily intake", i.e. the maximum daily dose of the chemical which appears to be without appreciable risk when taken by man throughout his entire lifetime.

Permissible level in foods

When a new pesticide is introduced it is usually only recommended for use on a limited number of crops. Therefore considering the average per capita consumption of the foodstuffs in which the residue may occur, it is possible to calculate a maximum permissible tolerance of pesticide residues in terms of parts per million (p.p.m.). It is policy of the Directorate to establish the tolerances at levels which are consistent with good agricultural practices despite the fact that the probable safe level may be considerably higher. When these procedures are followed it should be possible for a person to consume food containing the pesticide at the maximum permitted level for an entire lifetime without suffering any ill effects.

FDD control

Routine examination of samples is conducted in regional laboratories in Halifax, Montreal, Toronto, Winnipeg and Vancouver by analysts who are specialists in pesticide determinations.

Products found to contain excessive residues are:

- removed from the market or diverted to processing if processing will remove the residue
- prevented from ever reaching the market
- or, in the case of imported foods they are refused entry.

Research

- development of new analytical methods of pesticide residues in order to improve the means of control
- evaluation of pesticide residues in an average meal as consumed by Canadian families.

Foods for which no pesticide tolerances have been established

There are some major groups of foods for which no tolerances have been established, as for example, milk, eggs, fish, and certain meat products. Pesticides are not applied directly to such foods and the amounts which might inadvertently find their way into them should be kept to a minimum.

A very minute quantity of a pesticide in these foods is not necessarily considered harmful. As a practical policy, no action is taken if the amount of the pesticide will not present a danger to health.

Conclusion

The tolerances for pesticides as well as the use of pesticides are constantly being reviewed and revised in the light of new data regarding toxicity and taking into account new methods of analysis for detection of residues. The Federal Interdepartmental Committee on Pesticides with representatives from the following departments: Agriculture, National Health and Welfare, Fisheries and Forestry, Indian Affairs and Northern Development, Energy, Mines and Resources, National Defence and National Research Council, meet on a regular basis to deal generally with the use and effects of pesticides.

The policy of having two categories of foods, those for which a tolerance has been established and those with no tolerance, provides adequate protection to the public and at the same time, permits the necessary use of pesticides in agricultural production.

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Canadian Agricultural Chemicals Association
Suite 1004, 1010 St. Catherine St. West, Montreal 2, Quebec
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FAO Agricultural Studies No. 73, WHO Technical Report Series No. 370

Material available from Educational Services
Fact Sheet
Pesticides

CONTROL OF PATHOGENS AND MYCOTOXINS IN FOODS

Reported Cases of Salmonella Infection in Canada

	Salmonella isolated from human sources	Salmonella isolated from non-human sources
1964	2,796	929
1965	2,910	1,037
1966	2,551	1,048
1967	2,673	1,379

Foods Involved in Outbreaks of Botulism in Canada and the U.S.A. 1899-1964*

Foods	Home Canned	Commercially Canned
Vegetables	365	18
Meats	37	8
Sea Foods	52	22
Fruit	34	0
Olives	4	13
Milk-Cheese	5	3
Home Brew	1	0
Salad Dressing Mustard	1	0
Other Foods	5	1
Total	504	65

Total Outbreaks 651
Total Cases 1,670
Total Deaths 1,008

*Meyer K. F. and Eddie B.
Sixty-Five Years of Human Botulism in the United States and Canada 1899-1964

Food-borne illness associated with egg salad, sandwiches, church luncheons and Sunday picnics may be considered a threat of a past era in our super hygienic society.

However, Lennington* reminds us that our mode of living and technology probably renders us more susceptible to food-borne infection today. The convenience foods, ready-to-eat items, and frozen prepared dinners requiring only minimum heating prior to serving are open avenues for mass infection. Our production and distribution system is such that the output of a plant may be distributed nationwide or even worldwide. This means that an infected employee, or a breakdown or deterioration of some phase of plant sanitation, can infect thousands of consumers instead of a limited surrounding community.

It is estimated that 5 to 10 million cases of acute digestive illness occur annually in the U.S.A. but less than 1% of these are investigated sufficiently to determine the causative agents or their routes of transmission.

The most commonly involved pathogens in food-borne illness are staphylococci and salmonella while outbreaks due to Clostridium botulinum and Clostridium perfringens are less frequent.

FDD control of pathogens in foods

Legislation

There are several provisions in the Food and Drugs Act that make it possible for FDD to exercise a control over the spread of pathogenic microorganisms.

*See bibliography

Article 4. No person shall sell an article of food that
a. has in or upon it any poisonous or harmful substance;
b. is unfit for human consumption;
c. consists in whole or in part of any filthy, putrid, disgusting, rotten, decomposed or diseased animal or vegetable substance;
d. is adulterated; or
e. was manufactured, prepared, preserved, packaged or stored under unsanitary conditions.

Article 7. No person shall manufacture, prepare, preserve, package or store for sale any food under unsanitary conditions.

Besides the broad terms of reference set out in those two articles other regulations deal more specifically with this problem:

B.21.025 No person shall sell smoked fish or a smoked fish product packed in a container that has been sealed to exclude air unless it
a. has been heat-processed after sealing at a temperature and for a time sufficient to destroy all spores of the species clostridium botulinum; . . .

B.22.032 No person shall sell any egg product or liquid eggs for use as a food unless it is free from the genus Salmonella, as determined by the official method.

B.14.014 Notwithstanding Section B.14.013 a meat, meat by-product or preparation thereof, packed in a hermetically sealed container that has not been processed as required by Section B.14.013, may be sold if
a. it has been stored continuously under refrigeration, and the label carries a statement on the main panel to the effect that the product is perishable and must be kept refrigerated;
b. it has been maintained continuously in the frozen state and the label carries a statement on the main panel to the effect that the product is perishable and must be kept frozen;
c. it contains a Class I preservative or appropriate mixtures thereof in accordance with good manufacturing practice and has been heat processed after or at the time of sealing at a temperature and for a time sufficient to prevent the formation of any bacterial toxins;
d. it has been subjected to a dehydration procedure in accordance with good manufacturing practice; or
e. it has a pH of 4.4 or less.

Inspection

One of the purposes of FDD surveillance is to isolate and identify pathogens in foods and to take appropriate action aimed at eliminating or reducing the levels of such contaminants to a point where they no longer present a health hazard to consumers.

The Food and Drug inspectors pursue a well delineated microbiological program on several fronts:
- sample and analysis of various food products at the retail level and of imports — imported foods judged unsatisfactory are refused entry;
- at the manufacturers and warehouses, samples of raw materials from the production line are taken and analysed;
- a microbiological plant inspection is carried out by an inspector and a microbiologist, whenever significant pathogens are found in products manufactured in a food plant.

Target Products for Various Pathogens in FDD Food Inspection Program

Salmonella	Staphylococci	Cl. botulinum	Cl. perfringens
powdered dairy products	barbecue meats	raw livers	meat: raw, cooked, semi-cooked
instant breakfast	fish and frozen shrimps	liver sausages	frozen meats
coffee whiteners	meat pies	canned meat products	barbecue meat products
frog legs	powdered dairy products	corned beef	
powdered eggs	cheddar cheese	meat loaf	
frozen eggs	dessert toppings		
bakery foods	pre-cooked frozen foods		
frozen dessert egg containing			
baby foods			
pre-packaged meats			

Education

Workshops have been held with manufacturers in various regions to promote better hygienic practices in food processing plants. Our

inspectors also provide advice to the manufacturer for improvement of sanitary conditions when needed.

However, on the home front, it seems essential to pursue a consumer education program on sanitation and proper food handling. The following points which have been stressed in our publications need emphasis:

- cooked foods should be refrigerated immediately after serving.
- foods that have an off-odour should be discarded and not tasted.
- frozen foods should be kept frozen and should not be allowed to go through a freeze-thaw-freeze process.
- home canning of meat and non-acid vegetables is discouraged.
- incidences of food-borne illness should be promptly reported to local health agencies.

Control of Mycotoxins

Mycotoxins is a generic term used to describe the substance formed during the growth of moulds. Poisoning by mycotoxins is called mycotoxicosis and it is frequently mediated through particular organs notably the liver, kidneys and brain.

Under suitable conditions, foods provide a favourable medium for mould growth and once the mycotoxins have been formed they remain even though the mould be subsequently killed by sterilization. The major known food contaminant of this kind is Aspergillus flavus and the most important group of toxins it produces is called aflatoxin. The aflatoxins are potent poisons and imported ground nut meal contaminated with this mycotoxin caused extensive poultry and livestock losses in Britain in 1960.

FDD inspectors check imports of nuts and their products at customs for the presence of aflatoxin. The tolerance for aflatoxin on edible nut products sold in Canada is 20 p.p.b. Shipments of nuts containing 20-30 p.p.b. total aflatoxin are permitted entry on evidence that they will be subject to proper processing procedures such that the product sold on the Canadian market will not contain more than 20 p.p.b. total aflatoxin. Other foods that are analysed domestically for the presence of mycotoxins are: peanut butter, flour, baby foods, cereals, confectionery, ice creams and other foods containing food ingredients susceptible to mould contamination.

Table 7 Diseases of Infectious or Microbial Origin

Name of Disease	Infectious or Toxifying Agent	Incubation	Duration	Reservoir	Symptoms
Salmonellosis	800 serotype species of Salmonella	12-24 hrs. (6-72 hrs.)	1-3 days typhoid: 3-4 mos.	domestic and wild animals; their products; man (carrier)	nausea; vomiting; cramps; diarrhea; fever; headache; prostration
Staphylococcal food poisoning	Staphylococcus aureus enterotoxin	2-4 hrs. (1-6 hrs.)	1-1½ days	man; cows with infected udders	violent intoxication resulting in nausea; cramps; vomiting; diarrhea; prostration
Botulism	Clostridium botulinum A, B, E. toxin	12-36 hrs. (4 hrs.-6 days)	70% death in 6 days (Type A toxin)	soil; intestinal tract of animals; fish	afebrile bacterial intoxication; dizziness; headache; constipation
Clostridium perfringens or Cl. welchii food poisoning	Clostridium perfrigens lecithinase heat resistant Type A	10-12 hrs. (8-20 hrs.)	1 day or less	man; cattle; pigs; rodents	lecithin breakdown products give rise to abdominal colic and diarrhea

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Material available from Educational Services
Fact Sheets
Food-Borne Illness
Pamphlet
Why Get Ill From Foods?

Tear Sheet
Barbecue Chicken and Food Safety

EDUCATIONAL SERVICES

The function of Educational Services is to inform Canadians about the food and drug laws administered by the Food and Drug Directorate — why enacted and how they benefit all. Formerly called the Consumer Division the name was changed to indicate the expansion of services to educators.

Action is centered in the offices of the trained consultants attached to the five FDD regions in Canada — Montreal, Halifax, Winnipeg, Toronto and Vancouver. To make consumers aware of the FDD protection measures, they work with media but mainly with groups, teachers, community workers, consumer associations, provincial government departments and professional societies. Each consultant activates projects to suit the requirements of her area.

Consultants may give assistance to educators in several ways:

- help to plan conferences and seminars on food and drug protection measures
- provide informative material — booklets, monthly bulletins
- talks using visual aids
- provide teaching aids, as slides, flip charts, fact sheets
- participate in community health and consumer education programs
- provide background material for speeches
- keep up to date with regulations and latest FDD publications
- school workshops.

The central and coordinating office of Educational Services is in Ottawa. The broad goals are established there and materials such as booklets, fact sheets, monthly bulletins are prepared and distributed.

Educational Services also welcomes comments from educators about the type of informative materials they require for projects on food and health topics under the jurisdiction of the Food and Drug Directorate.

The regional consultant may be contacted at any of the following addresses:

Food and Drug Regional Office
55 St. Clair Avenue East
Toronto 7, Ontario

Food and Drug Regional Office
Room 701, Customs Bldg.
1001 West Pender Street
Vancouver 1, B.C.

Food and Drug Regional Office
P.O. Box 605
Ralston Building
1557 Hollis Street
Halifax, N.S.

Food and Drug Regional Office
310 Federal Building
Main and Water Streets
Winnipeg 1, Manitoba

Food and Drug Regional Office
Room 800, 400 Youville Square
Montreal, Quebec

Appendix I

T.I.L. NO. 319

DATE September 25, 1969.

To: All Food Manufacturers

Re: Transfer of Certain Responsibilities Relating to Foods Under the Food and Drugs Act and Regulations to the Department of Consumer and Corporate Affairs.

In accordance with the Prime Minister's statement of July 12, 1968, certain responsibilities relating to foods, as prescribed by the Food and Drugs Act and Regulations, have been transferred from the Food and Drug Directorate, Department of National Health and Welfare, to the Bureau of Consumer Affairs, Department of Consumer and Corporate Affairs. It should be noted that the transfer described below relates only to the Food and Drugs Act and not to responsibilities arising from other legislation administered by the Department of Agriculture or the Department of Fisheries and Forestry.

To carry out the responsibilities now assumed by the Department of Consumer and Corporate Affairs, the Food Section of the Advertising, Labelling and Registration Division of the Food and Drug Directorate at Ottawa was transferred to the Standards Branch, Department of Consumer and Corporate Affairs, Tunney's Pasture, Ottawa, Ontario, and will now be known as the Food Division of that Branch.

In addition to the changes at Ottawa, the Bureau of Consumer Affairs has opened offices at various centres across Canada and a number of Food and Drug officers have been transferred to these centres to carry out the functions and new assignments of this Branch. These officers will be working under the direction of Regional Managers of the Operations Branch of the Bureau of Consumer Affairs.

Further details regarding the organizational structure will be forwarded at a later date.

The Bureau of Consumer Affairs is responsible for:

1. The labelling, advertising and packaging (other than components of packaging materials) of foods under the authority of the Food and Drugs Act and Regulations;

2. The enforcement and interpretation of those provisions of the Food and Drug Regulations relating to economic fraud in foods;

3. The inspection of foods at the retail level;

4. The investigation of consumer complaints concerning economic fraud in foods;

5. The approval of radio and television commercials for foods and the maintenance of the surveillance of food and drug continuities at radio and television stations on behalf of the Canadian Radio and Television Commission;

6. Any consultation required with food manufacturers, consumer groups, Federal or Provincial Government Departments or trade associations, on the foregoing matters, under the authority of the Food and Drugs Act and Regulations.

Enquiries on the following matters should be directed to the Bureau of Consumer Affairs, Department of Consumer and Corporate Affairs, Tunney's Pasture, Ottawa 3, Ontario.

(a) the review of the labelling, advertising, and packaging of foods and the interpretation of regulations relating to food composition as required for these purposes.

(b) the interpretation, development, amendment and enforcement of Food and Drug Regulations, concerning labelling, advertising and packaging of foods.

(c) the enforcement of regulations dealing with economic fraud in foods.

The Food and Drug Directorate is responsible for:

1. The composition of foods under the authority of the Food and Drugs Act and Regulations;

2. The enforcement and interpretation of those provisions of the Food and Drug Regulations relating to the health hazard aspects of foods;

3. The inspection of food processing plants, warehouses and storage and distribution facilities;

4. The investigation of consumer complaints regarding the safety of foods and food ingredients;

5. The provision of advice on the efficacy and safety of components of packaging materials and of disinfectants and sanitizers used in food processing plants;

6. The processing of test marketing applications for foods as provided for in Sections B.01.054 and B.01.055 of the Food and Drug Regulations;

7. Any consultation required with food manufacturers, consumer groups, Federal or Provincial Government Departments or trade associations on the foregoing matters under the authority of the Food and Drugs Act and Regulations.

Enquiries regarding the following matters should be directed to the Food and Drug Directorate, Department of National Health and Welfare, Tunney's Pasture, Ottawa 3, Ontario.

(a) The composition of foods from the standpoint of technological justification and safety including food ingredients, food additives, the addition of vitamins, minerals or amino acids to foods; microbial content; pesticide residue tolerances;

(b) The interpretation, development, amendment, and enforcement of regulations regarding the composition of foods from the standpoint of technological justification and safety;

(c) The enforcement of regulations dealing with health aspects of foods;

(d) The test marketing of foods.

The Bureau of Consumer Affairs and the Food and Drug Directorate will maintain close liaison both at Ottawa and in the Regions and will collaborate fully on all matters of mutual interest and concern. Every effort will be made to ensure that prompt attention is paid to all requests.

G.F. Osbaldeston,
Assistant Deputy Minister,
Bureau of Consumer Affairs,
Department of Consumer and
Corporate Affairs.

R.A. Chapman,
Director-General,
Food and Drug Directorate,
Department of National Health
and Welfare.

Standardized foods

Alcoholic Beverages

Whisky
Malt Whisky
Grain Whisky
Scotch Whisky
Irish Whisky
Canadian Whisky
Highland Whisky
Rum
Hollands Gin, Genever, Gin, other than Hollands
Dry Gin
Domestic Brandy
Imported Brandy
Cognac
Armagnac
Fruit Brandy or (naming the fruit) Brandy
Liqueurs and Alcoholic Cordials
Vodka
Wine
Fruit Spirit
Fruit Wine or (naming the Fruit) Wine
Vermouth
Wine Cocktail
Honey Wine
May Wine
Cider
Sparkling Cider
Champagne Cider
Malt Liquor
Ale
Beer
Light Beer
Stout
Porter

Baking Powder

Baking Powder

Cacao and Chocolate

Cocoa Beans
Cocoa Nibs
Chocolate, Plain Chocolate, Bitter Chocolate or Chocolate Liquor
Sweet Chocolate or Sweet Chocolate Coating
Milk Chocolate, Sweet Milk Chocolate, Coatings
Cocoa or Powdered Cocoa
Unroasted Coffee and Roasted Coffee or Coffee

Colours

Oil-soluble Annatto, Annatto Butter Colour or Annatto Margarine Colour
β-Carotene
β-Apo-8′-Carotenal
Canthaxanthin
Carbon Black
Charcoal
Amaranth
Erythrosine
Ponceau SX
Tartrazine
Sunset Yellow FCF
Fast Green FCF
Indigotine
Brilliant Blue FCF
Benzyl Violet 4B
Citrus Red No. 2

Spices, Dressings and Seasonings

Cloves
Ginger
Jamaica Ginger
Limed or Bleached Ginger
Mustard, Mustard Flour or Ground Mustard
Allspice or Pimento
Cinnamon or Cassia
Ceylon Cinnamon
Mace
Nutmeg
Black Pepper or Peppercorn
White Pepper
Cayenne Pepper
Paprika
Turmeric
Sage
Thyme
Caraway Seed
Cardamon Seed
Celery Seed
Coriander Seed
Dill Seed
Mustard Seed
Marjoram
Curry Powder
Onion Salt
Garlic Salt
Celery Salt
Celery Pepper
Mayonnaise
French Dressing
Salad Dressing

Dairy Products

Milk or Whole Milk
Skim Milk
Partly Skimmed Milk
Milk Fat or Butter Fat
Sterilized Milk
Condensed Milk or Sweetened Condensed Milk
Evaporated Milk or Unsweetened Condensed Milk
Evaporated Skim Milk or Concentrated Skim Milk
Milk Powder, Dry Milk, Dry Whole Milk
Skim Milk Powder or Dry Skim Milk
(naming the flavour) Milk
Chocolate Drink
Skim Milk Cheese
Cream Cheese
Cream Cheese with (naming the other cheese, fruit, vegetable, relish or chocolate)
Process Cheese, Emulsified Cheese, Process cheese spread or Process cream cheese, Process cream cheese spread
Skim Milk Process Cheese
Whey
Bacterial Culture
(naming the flavour) Malted Milk or (naming the flavour) Malted Milk Powder
Modified Skim Milk
Modified Partly Skimmed Milk
Malted Milk or Malted Milk Powder
(naming the flavour) Dairy Drink
(naming the flavour) Skim Milk
Cheese
Cheddar Cheese or Canadian Cheddar Cheese
The following varieties or types of cheese listed in the table: Cheddar, Alpin, Asiago, Blue Vein, Bel Paese, Brick, Camembert, Feta, Gouda, Granular, Limburger, Neufchatel, Port du Salut, Esrom, Havarti, Maribo, Pasta Filata, Samsoe, Steppe, Tilsiter, Emmenthaler, Gruyere, Swiss, Bra, Edam, Leyden, Parmesan, Romano, Part Skim Pizza, Part Skim Mozzarella, Part Skim Scamorza, Hard Grating Cheese
Cottage Cheese
Creamed Cottage Cheese
Butter
Whey Butter
Ice Cream Mix
Ice Cream
Sherbet
Ice Milk Mix
Ice Milk
Cream

Fats and Oils

Vegetable fats and oils
Animal fats and oils
Olive Oil or Sweet Oil
Cotton Seed Oil
Cocoa Butter
Corn Oil or Maize Oil
Peanut Oil or Arachis Oil
Soy Bean Oil or Soja Oil
Sunflower Seed Oil
Shortening
Monoglycerides, Monoglycerides and Diglycerides
Lard
Leaf Lard
Suet

Flavouring Preparations

(naming the fruit) Extract or Essence Naturally Fortified or (naming the fruit) Flavour Naturally Fortified
(naming the flavour) Extract or Essence
Artificial (naming the flavour) Extract or Essence, Imitation (naming the flavour)
(naming the flavour) Flavour
Artificial or (naming the flavour) Imitation (naming the flavour)
Celery Seed Essence, Extract or Flavour
Cassia Essence, Extract or Flavour or Cassia Cinnamon Essence, Extract or Flavour
Ceylon Cinnamon Essence, Extract or Flavour
Ginger Essence, Extract or Flavour
Almond Essence, Extract or Flavour
Anise Essence, Extract or Flavour
Lemon Essence, Extract or Flavour
Nutmeg Essence, Extract or Flavour
Orange Essence, Extract or Flavour
Peppermint Essence, Extract or Flavour
Rose Essence, Extract or Flavour
Savory Essence, Extract or Flavour
Spearmint Essence, Extract or Flavour
Sweet Basil Essence, Extract or Flavour
Marjoram or Sweet Marjoram Essence, Extract or Flavour
Thyme Essence, Extract or Flavour
Vanilla Extract, Essence or Flavour
Wintergreen Essence, Extract or Flavour
Clove Essence, Extract or Flavour

Fruits, Vegetables and their Products

Canned (naming the vegetable)
Canned Mushrooms
Frozen (naming the vegetable)
Tomatoes or Canned Tomatoes
Tomato Juice
Tomato Paste
Concentrated Tomato Paste
Tomato Pulp
Tomato Puree
Tomato Catsup, Catsup
Beans with Pork
Beans or Vegeterian Beans
Olives
Pickles and Relishes
(naming the fruit) Jam
(naming the fruit) Jam with Pectin
Apple (or rhubarb) (naming the fruit) Jam
(naming the citrus fruit) Marmalade
(naming the citrus fruit) Marmalade with Pectin
Pineapple Marmalade or Fig Marmalade
Pineapple or Fig Marmalade with Pectin
Canned (naming the fruit)
Frozen (naming the fruit)
(naming the fruit) Juice
Apple Juice
Grape Juice
Grapefruit Juice
Lemon Juice
Lime Juice
Orange Juice
Pineapple Juice
Carbonated or Sparkling (name the fruit) Juice
Concentrated (naming the fruit) juice (naming the fruits) Juice
Apple and (naming the fruit) Juice
Reconstituted (naming the fruit) Juice or (naming the fruit) Juice from concentrate
(naming the fruit) Preserve (Conserve)
(naming the fruit) Jelly
(naming the fruit) Jelly with Pectin
Mince, Mince Meat or Fruit Mince
Boiled Cider

Gelling Agents

Gelatin or Edible Gelatin
Irish Moss Gelose, Carrageen or Carrageenin
Agar or Agar-Agar

Grain and Bakery Products

Flour or White Flour
Enriched Flour or Enriched White Flour
Vitamin B White Flour (Canada Approved)
Enriched Vitamin B White Flour
Whole Wheat Flour or Entire Wheat Flour
Graham Flour
Gluten Flour
Enriched Vitamin B White Bread
Raisin Bread
Crushed Wheat or Coarse Ground Wheat
Cracked Wheat
Rice
Corn Starch
Bread or White Bread
Enriched Bread or Enriched White Bread
Vitamin B White Bread (Canada Approved)
(naming the percentage) Whole Wheat Bread
Brown Bread

Meat and Meat Products

Meat
Meat By-products
Prepared Meat or Prepared Meat By-products
Meat Binder or (naming the meat product) Binder
Pumping Pickle
Minced or Ground Beef
Preserved Meat or Preserved Meat By-product
Sausage or Sausage Meat
Potted Meat, Meat Paste or Meat Spread
Potted Meat By-product, Meat By-product Paste or Meat By-product Spread
Meat Loaf, Meat Roll, Meat Lunch or Luncheon Meat
Meat By-product Loaf or Meat and Meat By-product Loaf
Headcheese
Brawn
Edible Bone Meal or Edible Bone Flour
Wieners and Beans
Beans and Wieners

Salt

Salt
Flour Salt

Sweetening Agents

Sugar
Liquid Sugar
Invert Sugar
Liquid Invert Sugar
Icing Sugar
Brown Sugar, or Golden Sugar
Refined Syrup, Refiners' Syrup or Golden Syrup
(naming the source of the glucose) Syrup
Fancy Molasses
Table Molasses
Refiners' Molasses, Blackstrap Molasses or Cooking Molasses
Dextrose
Glucose
Glucose Solids
Honey

Vinegar

Vinegar
Wine Vinegar
Spirit Vinegar, Alcohol Vinegar, White Vinegar or Grain Vinegar
Malt Vinegar
Cider Vinegar or Apple Vinegar
Blended Vinegar

Tea

Tea
Black Tea
Green Tea

Marine and Fresh Water Animal Products

Fish
Prepared Fish
Fish Binder
Chicken Haddie and Flaked Fish
Preserved Fish
Finnan Haddie

Poultry

Poultry Meat
Poultry Meat By-product
Giblets
Prepared Poultry Meat or Prepared Poultry Meat By-products
Filler
Preserved Poultry Meat or Preserved Poultry Meat By-product
Canned (naming the Poultry)
Broth that is used in canning (naming the Poultry)
Boneless (naming the Poultry)
Liquid, Dried or Frozen Whole Egg, Egg-Yolk, Egg-White, Egg-Albumen or mixture of these.

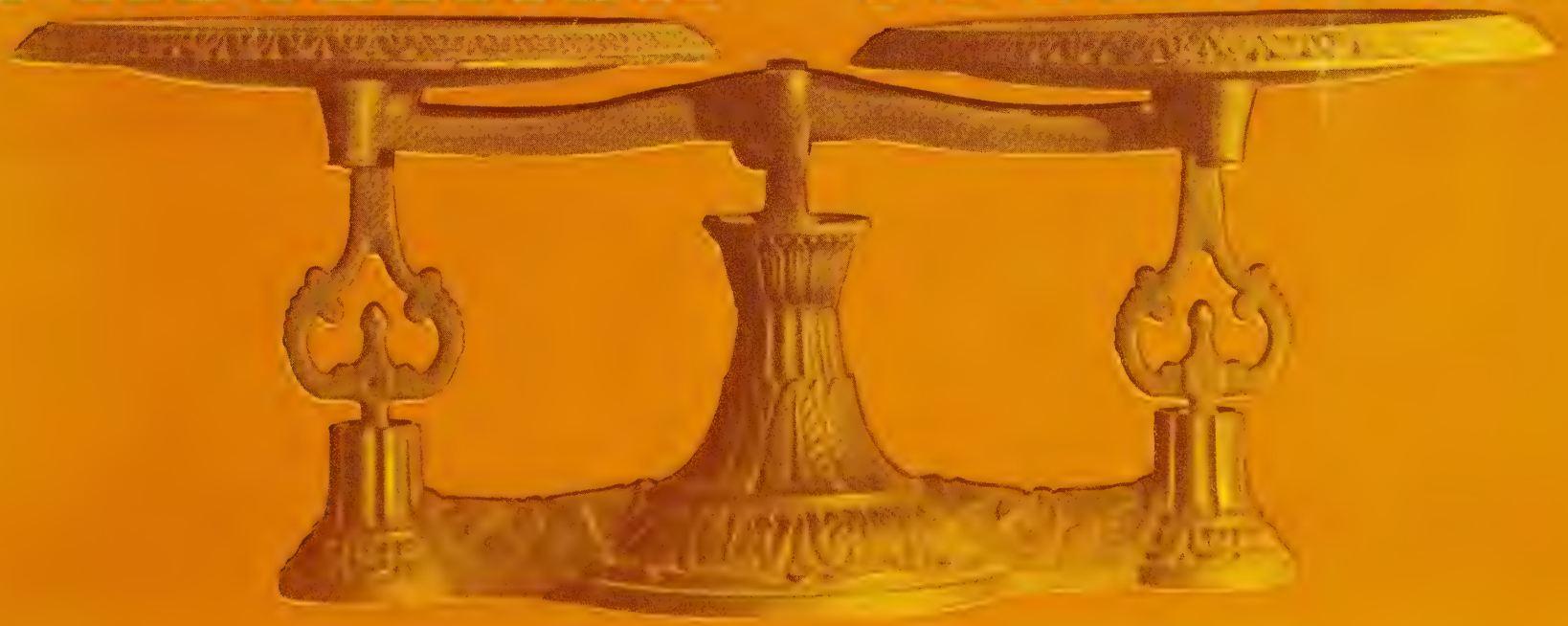
NOTES

NOTES

NOTES

Health and Welfare Canada
Santé et Bien-être social Canada

HEALTH PROTECTION AND FOOD LAWS



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HEALTH PROTECTION AND FOOD LAWS

This booklet is designed to explain the major aspects of Canadian food legislation under the jurisdiction of the Health Protection Branch to health educators, nutritionists, public health workers, dietitians and other professional groups whom we believe have a primary concern with the elimination of health hazards in foods.

This publication is part of our food education program. Through it, we hope to inform and to enlist the cooperation of all educators who are involved in consumer or health education. We also wish to establish a closer dialogue with all professional groups interested in food legislation as it relates to health.

For convenient use as a reference booklet, we have included a list of resource materials at the end of each section which we hope will be helpful to teachers and students.

Contents

FOOD LEGISLATION A HEALTH SAFEGUARD

"Once a secondary matter, safeguarding health has now become the primary principle (of food legislation) because of the prodigious development of the food industry, of the evolution of social ideas and of the increased risks that moden techniques may present to man's health . . .

This factor therefore is now at the root of all modern food legislation . . ." Bigwood, E. J. and Gérard A.

The food and drugs act

One of the responsibilities of the Health Protection Branch, Health and Welfare Canada, is to protect the Canadian public from hazards to health in foods and to deal with matters of food quality. The legislation that makes it possible for the Branch to exercise this control is the *Food and Drugs Act and Regulations.*

The genesis of this legislation goes back to the early days of Confederation when intemperance constituted an important social and health problem. There was a great demand for alcohol at that time and no control over its production, consequently much of the alcohol sold was adulterated. Pressure was brought upon the government to take action to check such adulteration in the hope of preventing health hazards associated with the consumption of poor quality liquor. The *Inland Revenue Act* passed in 1875 thus became the earliest law enacted by the Canadian government to protect the public against the adulteration of food, drink and drugs. It was the first such law of national scope in the Americas. In 1877 the first annual report issued by the appointed analysts revealed that 51.5% of the food samples examined, mainly spices and milk, were adulterated.

A major amendment to this act was passed in 1884 and created the position of a Chief Analyst in Ottawa. The legislation was then known as the *Adulteration Act.* In 1910 the first standards for foods were promulgated after consultation with representatives from the food industry. Today, that pattern of co-operation continues to provide industry with an opportunity to comment on proposed regulations. In 1919 with the establishment of the Department of Health, the Food and Drugs Division was created and became responsible for the administration of the *Adulteration Act.* This act was later repealed in 1920 and superseded by the *Food and Drugs Act* which has been amended several times since then. The present *Food and Drugs Act* was passed in 1953.

The articles of the act dealing with foods are reproduced below and indicate clearly the scope of this legislation, and therefore the responsibility of Health and Welfare Canada, in preventing health hazards associated with foods. The Department of Consumer and Corporate Affairs is responsible for enforcing all aspects of the *Food and Drugs Act and Regulations* pertaining to economic fraud and labelling.

> "3. (1) No person shall advertise any food, drug, cosmetic or device to the general public as a treatment, preventative or cure for any of the diseases, disorders or abnormal physical states mentioned in Schedule A.*

*See list, page 39.

(2) No person shall sell any food, drug, cosmetic or device
(a) that is represented by label, or
(b) that he advertises to the general public as a treatment, preventative or cure for any of the diseases, disorders or abnormal physical states mentioned in Schedule A.*

4. No person shall sell an article of food that
(a) has in or upon it any poisonous or harmful substance;
(b) is unfit for human consumption;
(c) consists in whole or in part of any filthy, putrid, disgusting, rotten, decomposed or diseased animal or vegetable substance;
(d) is adulterated; or
(e) was manufactured, prepared, preserved, packaged or stored under sanitary conditions.

5. (1) No person shall label, package, treat, process, sell or advertise any food in a manner that is false, misleading or deceptive or is likely to create an erroneous impression regarding its character, value, quantity, composition, merit or safety.
(2) An article of food that is not labelled or packaged as required by the regulations, or is labelled or packaged contrary to the regulations, shall be deemed to be labelled or packaged contrary to subsection (1).

6. Where a standard** has been prescribed for a food, no person shall label, package, sell or advertise any article in such a manner that it is likely to be mistaken for such food, unless the article complies with the prescribed standard.

7. No person shall manufacture, prepare, preserve, package or store for sale any food under unsanitary conditions."

The regulations

To keep up with new scientific or technological findings and to cope with the demands of our modern food industry, it is necessary to have a system of legislation which is flexible enough to allow for the introduction of new regulations without undue delay. Such a provision is contained in the *Food and Drugs Act* whereby authority has been entrusted to the Governor-in-Council for making new regulations. These regulations have the same force and effect as the act itself. For instance, regulations may be enacted respecting the use of any substance as an ingredient in any food in order to preact itself. For instance, regulations may be enacted regarding the vent fraud or health hazards, or regarding the establishment of standards of composition or quality for any article of food. It is therefore possible to set regulations which will control, for example, the use of food additives, the fortification of foods or the microbiological quality of certain foods.

Regulations are constantly being reviewed or developed. Requests for changes in the regulations may arise from several sources including consumer groups, food industry and researchers. Experimental work may have been conducted either in Health Protection Branch laboratories, the universities or in industry by various scientists and food technologists to evaluate the toxicity of a food additive, to introduce a new processing technique, or to study the nutritional status of a population. These findings may reveal the need to allow for the use of a new food additive or for the enrichment of certain foods.

When a submission is made, the data is evaluated by members of the Food Directorate including scientists and food technologists as well as administrative representatives from the Branch. A number of factors must be considered, including health hazards and fraud, and consideration must be given to the problems this request could represent in terms of surveillance and control. Proposals for the modifications of the regulations are then communicated to the food industry by an Information Letter which briefly outlines the problem and the philosophy of the proposed regulation and invites comments from members of the trade or any other interested group. If the matter is controversial, it may be necessary to discuss the proposals in detail with representatives of the industry concerned and to seek the advice of experts in the field of interest. After a careful study of the recommendations received, the Health Protection Branch outlines the conditions to be regulated and the Legal Services Division of Health and Welfare Canada drafts the new regulation.

*See list, page 39.
**See list, page 43.

The Department of Justice will review this draft and the regulation in its final form will be referred to the Minister of Health and Welfare who presents it to the Governor-in-Council, that is, the Cabinet composed of the Prime Minister and Ministers of the Crown. It is finally published in the Canada Gazette when it becomes law.

Although there is no provision for public hearings, the Minister of Health and Welfare answers to Parliament on matters pertaining to HPB regulations sanctioned by the Governor-in-Council. Through this democratic process the Minister is responsible to the electorate. Furthermore, the validity of any regulation is subject to challenge in the courts.

The Branch has maintained excellent communications with the food industry and consumer groups throughout the years and welcomes as well representations made by various professional groups. Any proposal from such groups is carefully considered.

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Available from regional Information Canada bookstores, or from:

Information Canada
171 Slater Street
Ottawa, Ontario
K1A 509

BASIC FOOD REGULATIONS: Labelling, Advertising, Food Standards

A. Labelling

The Department of Consumer and Corporate Affairs is responsible for the labelling, packaging and advertising of foods under the authority of the *Consumer Packaging and Labelling Act and Regulations* and the *Food and Drugs Act and Regulations.*

In 1973 the Department of Consumer and Corporate Affairs issued proposed Consumer Packaging and Labelling Regulations as well as proposed changes to the Food and Drug Regulations which would modify significantly the requirements for the labelling of foods. These new regulations were promulgated in March 1974, and manufacturers were given up to the 1st of March 1976 to comply with the new requirements. The main features of these regulations are outlined here. For further details one should contact the Department of Consumer and Corporate Affairs.

What should appear on a food label:

- the brand name of the product if any
- the common name of the food
- the net quantity of the food specified
- the name and address of the person responsible for the product
- the list of ingredients
- the durable life date and storage instructions as required

The net quantity

In prepackaged products, with certain specified exceptions, the net quantity must be by volume when the product is liquid or viscous and by weight for solid products.

Food products exempted from a net weight declaration:

- prepackaged individual servings prepared by a commissary and sold from vending machines or mobile canteens
- catchweight products sold to a retailer
- products packaged from bulk at time of sale on retail premises

Name and address of the person held responsible for the product

This is defined as the identity and principal place of business of the person by or for whom the food was manufactured or produced for resale. It can be the name of the actual manufacturer of a product or the name of a firm or store that had a product manufactured under its own brand name.

The list of ingredients

(1) Food products must carry a list of ingredients in descending order of volume or the percentage by weight of each ingredient must be declared.

A list of ingredients is *not* required on:

- products packaged from bulk at time of sale on the retail premises
- prepackaged individual portions of food sold in restaurants
- individual portions of food prepared by a commissary and sold from a vending machine or mobile canteen

- one-bite candies sold individually
- standardized alcoholic beverages*

The former exemption for all standardized foods has been abolished. The following ingredients may be listed in any order immediately after the other ingredients:

- spices, seasonings and herbs, except salt
- natural and artificial flavours
- flavour enhancers
- food additives
- vitamins
- salts or derivatives of vitamins
- mineral nutrients
- salts of mineral nutrients

(2) Ingredients shall be listed under their common name. However, certain ingredients may be listed under a class name. Table X lists the class name suitable for the ingredients listed in the table.

Table X Ingredients that may be listed under a class name

INGREDIENT	CLASS NAME
Vegetable fats or oils, except cocoa-butter, coconut oil, palm oil or palm kernel oil	"vegetable oil" or "vegetable fat"
Marine fats or oils	"marine oil"
Food colours listed as permitted food additives	"colour"
Natural flavours	"flavour"
Artificial flavours	"artificial flavour" "imitation flavour" or "simulated flavour"
Spices, seasonings or herbs, except salt	"spices" "seasonings" or "herbs"

Meat, poultry, fish or their by-products must be identified under their individual names. In the case of plant protein products and protein isolates, the name of the source of the product must be given.

(3) If an ingredient is optional or can be substituted for another one in the preparation of a product, the label may indicate all the ingredients that are likely to be used in this product during one year. However, there must be a clear indication that these specific ingredients may not all be present in a given package of the food.

Durable life date

For all foods, except fresh fruits and vegetables, which have a durable life of not more than 90 days, manufacturers will be required to indicate a durable life date on the label. Moreover, if these products require special storage conditions, instruction for proper storage must be given on the label.

"Durable life" is defined as the period of time during which a product stored under proper conditions will retain, without appreciable deterioration, its normal wholesomeness, palatability or nutritional value.

The date on which a product may no longer meet all these conditions is referred to as the durable life date. It should be noted that products may still be safe to eat after the durable life date, but the consumer may expect a certain deterioration in quality.

B. Advertising

All advertisements pertaining to foods aired on television and radio and originating in Canada must be cleared through the Canadian Radio and Television Commission and are submitted to the Department of Consumer and Corporate Affairs for approval.

Officers of this department regularly check food advertising appearing in newspapers and magazines published in Canada to ensure that it does not carry false or misleading nutritional information.

*See list, page 43.

The label or any other written material accompanying a product to be sold is considered as advertising and subject to control. However, false or misleading nutritional information published in books or magazines cannot be curtailed if it is not directly associated with the promotion of a product. Canada has no authority over broadcast advertising received on television or radio directly from the U.S.A.

General nutritional claims

The following nutritional claims are considered misleading:

- Claims pertaining to or based on an ingredient present in a food when an R.D.I.* of that food contains an insignificant amount of the selected ingredient, i.e., honey as a good source of a vitamin.
- The use of dietary standards or results of dietary surveys as related to dietary standards as promotional material.
- The selection of favourable references on controversial issues, with no indication that equally competent authorities are not in agreement.

Food and disease

No claims relating to the treatment, cure or prevention of the diseases or disorders listed in Schedule A** are tolerated on labels or in advertising.

Food vs. energy

The lay concept of energy, that is, having pep, vitality, vigor, strength or endurance cannot be stressed in food advertisements. Whenever a reference is made to "food energy" it should be in the nutritional sense, e.g., calories.

"Balance"

This concept relates to the diet as a whole or to the habitual food pattern. Although a single food may contribute to the establishment of this balance it is not in itself responsible for the nutritional balance and thus should not be represented as such.

*See page 14.
**See list, page 39.

Protein claims

The term PROTEIN may be used:

- in the list of ingredients when protein is used in the formulation: e.g., hydrolyzed vegetable protein.
- to state the amount of protein, fat and carbohydrate in a food.

"Excellent" or "Good" source of protein

A food may be advertised as an "excellent" or a "good" dietary source of protein if it meets the criteria defined by the *Food and Drug Regulations* for these claims.

The term "Excellent (dietary) source of protein" may be used if:

- the protein rating is not less than 40 in an R.D.I.; 20 for a food prepared especially for children.

The term "A Good (dietary) source of protein" may be used if:

- the protein rating is not less than 20 in an R.D.I. of that food.

Protein rating

Protein rating is one way of estimating the nutritive value of proteins as part of the daily diet. The Health Protection Branch considers three factors in determining the protein of a food:

- the amount of the food consumed in an R.D.I.
- the quantity of protein in the food
- the nutritive value of the protein as determined by the protein efficiency ratio (P.E.R.)***

These three factors are summarized in the following formula:

P.E.R. $\times$ grams of protein in R.D.I. = Protein Rating.

For instance, the P.E.R. of egg protein is 3.8 and a Reasonable Daily Intake of eggs (2 eggs or 100 g.) will provide 12.8 g. of protein. Therefore, the protein rating for eggs is:

$$3.8 \times 12.8 = 48.6$$

Eggs are thus claimed to be an excellent source of protein because their rating is above 40.

A food with a rating below 20 does not contribute significant amounts of protein to the diet, and it is considered misleading to attach any special significance to its protein content or to use it in any way as the basis of advertising claims.

***P.E.R. Protein Efficiency Ratio, method of protein evaluation defined as the weight gain in grams of a growing rat divided by the grams of protein consumed in a standardized 4 week assay.

Protein rating is used to judge the validity of claims for labelling and advertising purposes but is not intended to be used in evaluation of diets.

Claims regarding the functions of proteins

The following claims may be made only if the food is described on the label as an "excellent" or "good" dietary source of protein:

- proteins help children grow.
- proteins help provide food energy.
- proteins are needed for the renewal and maintenance of the body tissues.

PROTEIN RATING OF CERTAIN FOODS

Food	R.D.I. grams	Protein in R.D.I. grams	P.E.R.	Protein Rating
Cabbage	100	1.4	0.9	1.3
Whole wheat	30	3.0	1.5	4.5
Wheat germ	5	1.8	2.6	4.6
Rolled oats	30	3.8	2.1	8.0
White bread	150	12.6	1.0	12.6
Soybeans (dry)	30	10.5	2.3	24.1
Cheese	60	18.6	2.3	43.2
Whole egg	100	12.8	3.8	48.6
Beef	100	21.0	3.2	67.2
Whole milk	915	32.0	2.8	89.6
Whole wheat bread	150	15.5	1.1	17.1
"Protein" bread	150	17.1	1.3	23.0
Rolled oats plus milk (1:4)	150	8.0	3.2	25.6
"Protein" cereal	30	6.0	0.03	0.2
"Protein" cereal plus milk (1:4)	150	10.0	2.0	20.0

TABLE 1 PERMITTED VITAMIN CLAIMS

	Min. in R.D.I. Excellent Source	Min. in R.D.I. Good Source	Min. in R.D.I. for Specific Claims	SPECIFIC CLAIMS
Vitamin D (I.U.)	300		300	Factor in the normal development and maintenance of bones and teeth, especially in infancy and childhood Factor in the maintenance of good health
Vitamin A (I.U.)	1200	600	1200	Factor in the maintenance of good health
Thiamine (mg)	0.45	0.25	0.45	Factor in the maintenance of good health
Riboflavin (mg)	0.75	0.4	0.75	Factor in the maintenance of good health
Niacin (mg)	4.5	2.5	4.5	Factor in the maintenance of good health
Vitamin C (mg)	15.0	7.5	15.0	Factor in the normal development and maintenance of bones, cartilage, teeth and gums

TABLE 2 PERMITTED MINERAL CLAIMS

	Min. in R.D.I. Excellent Source	Min. in R.D.I. Good Source	Min. in R.D.I. for Specific Claims	SPECIFIC CLAIMS
Calcium (mg)	300	150	300	Factor in the normal development and maintenance of bones and teeth, especially in infancy and childhood Factor in the maintenance of good health
Phosphorus (mg)	300	150	300	Factor in the normal development and maintenance of bones and teeth, especially in infancy and childhood Factor in the maintenance of good health
Iron (mg)	4	2	4	Factor in the prevention of iron deficiency Factor in the maintenance of good health

Vitamin and mineral claims

The basic principle of the regulations controlling claims based on the vitamin and mineral content of food is to prevent exploitation.

Guaranteed satisfaction

No assurance regarding results to be obtained from the addition of vitamin or minerals to the diet may be given in the advertisement of a food, and no testimonial may be quoted or reproduced for this purpose.

"Excellent" or "Good" source of vitamin or mineral

The use of these terms is restricted to foods with a naturally occurring vitamin or mineral content. In such a case the claim "excellent" or "good" dietary source is permitted if the R.D.I. of that food provides the amount of vitamin or mineral specified in Table 1 or Table 2.

Specific claims for enriched foods or foods are excellent sources of a vitamin or mineral

If the R.D.I.* of a food provides a certain minimum amount of vitamin or mineral, specific claims may be made regarding that vitamin or mineral as stated in Table 1 or 2.

In the advertising or labelling of an enriched food the statement may indicate the nature and the quantity of the nutrient added.

Claim for foods intended for children

A label statement, as to the presence of a vitamin or a mineral in a food intended solely for children under two years of age, can be made only if a reasonable daily intake of the food will provide the following minimum amount of the specified nutrient:

vitamin A	600.0 I.U.	pyridoxine	0.25 mg
thiamine	0.25 mg	calcium	150.0 mg
riboflavin	0.4 mg	phosphorus	150.0 mg
niacin	2.5 mg	iron	2.0 mg
ascorbic acid	7.5 mg	iodine	.05 mg

*See page 14.

Claims regarding the "saturation" of fats and oils

What claim is permitted?

The only claim permitted in the advertisement and labelling of fats and oils is a statement of the percentage by weight of polyunsaturated and saturated fatty acids in the total fats. Such a statement can be made provided the saturated fatty acids do not exceed 20%, and the polyunsaturates comprise at least 40% of the fat if it is in an oil, or at least 25% of the fat in shortening or similar products.

Percentage of fatty acids in total fat required to make a claim regarding the saturation of a product.

	Oil	Margarine
Cis-methylene interrupted polyunsaturated fatty acids	At least 40%	At least 25%
Saturated fatty acids	No more than 20%	No more than 20%

How should the claim be made?

Statements of the percentages of polyunsaturated and saturated fatty acids should:

- be grouped together,
- be given equal prominence, and
- clearly refer to total fat

e.g. 27% polyunsaturated fatty acid
18% saturated fatty acid

What about the cholesterol?

Any other reference to fatty acids or cholesterol is prohibited.

When buying an oil

Two guidelines can be used in selecting an oil high in polyunsaturated fats: look for the kind of oil recommended, or for a declaration pertaining to the saturation of the product.

The label of salad or table oil must indicate the kind of oil contained in the product and may carry a declaration as to percentage of saturated and polyunsaturated fatty acids present if the product meets the specifications stated above.

Choosing a margarine

To select a margarine containing a significant amount of polyunsaturated fats, look for the declaration which indicates the percentage of polyunsaturated and saturated fatty acids.

Artificial flavours

When an artificial flavour is used in a product and the label illustrates the natural product this flavouring imitates, it should be clearly indicated near the vignette or close to the common name of the product that the flavouring is an imitation or artificial.

C. Food standards

For approximately 300 food items* on the market, the *Food and Drug Regulations* define a standard of identity or composition which ensures that all products sold under a given name meet a certain quality. Standards protect the consumers and the food processors from unethical manufacturers who might attempt to sell a product of inferior quality under this name.

Standard of identity

This is a mere definition of the product, e.g.,

B.02.054 "Cognac Brandy or Cognac shall be brandy manutured in the Cognac district of France in accordance with the laws of the French Republic for consumption in that country".

Standard of composition

This type of standard may list mandatory (a) or permitted ingredients (b) or indicate analytical requirements (c) which must be met, e.g.,

B.07.031 "Mayonnaise, Mayonnaise Dressing or Mayonnaise Salad Dressing

(a) shall be a combination of

(i) vegetable oil

(ii) whole egg or egg yolk, in liquid, frozen or dried form, and

(iii) vinegar or lemon juice:

(b) may contain

(i) water

(ii) salt

(iii) a sweetening agent

(iv) spice or other seasoning except turmeric or saffron,

(v) citric, tartaric or lactic acid,

(vi) a sequestering agent; and

(c) shall contain not less than 65 per cent vegetable oil."

Nutritional standard

Substitutes for staple foods and meal replacements are becoming increasingly popular and some of these products might constitute a health hazard if they did not provide adequate nutritional value.

There are no specific rules controlling the introduction of substitute foods or meal replacements on the market and each case is treated separately.

It is customary for the food industry to submit to the Health Protection Branch proposals for the marketing of new foods in Canada. As HPB officers monitor the trends on the U.S.A. market, very often they can foresee new developments.

Upon receipt of data pertaining to a new substitute food, the information is reviewed to determine if sale of the product will contribute any short or long range health problems to Canadian consumers. When a substitute food is designed to replace a basic food in the Canadian diet, the Health Protection Branch requires a nutritional value similar to that of the natural food it intends to replace. This was the principle followed in outlining specific regulations for breakfast and meat substitutes, and infant formulae. When new legislation is required the procedure followed is as described on page 4 of this booklet.

The name of a substitute food is also subject to regulation as clear identification of the product is important to avoid confusion with natural food.

*See list, page 43.

Breakfast substitute

B.01.053 "No person shall sell a product represented as ready breakfast or instant breakfast or by any similar designation unless each portion or serving of the product contains

a. not less than 4.0 mg iron;

b. vitamin A, thiamine, riboflavin, niacin, or niacinamide and vitamin C;

c. a good dietary source of protein; and

d. where consumed as directed, not less than 300 calories"

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1) Breakfast Substitutes
2) Food Standards
3) Labelling of Fats and Oils
4) The Meat Complex
5) Wonder Foods

THE REASONABLE DAILY INTAKE

The Reasonable Daily Intake (R.D.I.) is an estimate of the probable daily consumption of a food when it is included in the diet of Canadians. This term of reference was first established to evaluate, for legislative purposes, the nutritional contribution of specific foods to the Canadian diet. Later when the vitamin and mineral regulations were promulgated, minimum and maximum values for the enrichment of foods were also given in terms of the R.D.I.

For instance, a food (eg., butter) may be described as a good or excellent source of a vitamin depending on the amount of this vitamin that is present in the R.D.I. It is therefore logical to use the same standard to determine the amount of a certain vitamin which can be added to a substitute for this food (eg., margarine) to ensure nutritional comparability.

The R.D.I. for most foods is considered to be one average serving. However, in the case of foods such as milk, bread, or butter, where several servings may be consumed daily, an attempt has been made to estimate what can be regarded as a reasonable intake considering the food habits of Canadians.

In the case of foods for which there is a wide range of intake, the R.D.I. is usually higher than the average daily intake of the whole population. In such cases the R.D.I. is an attempt to evaluate what is a reasonable intake among the population group where this food is most popular. For instance, the average daily intake of milk for children, teenagers and adults will vary greatly. Therefore, in an attempt to approximate reality, the R.D.I. for milk will take into consideration the reasonable daily intake of milk among milk drinkers.

It is important to distinguish the R.D.I. concept from that of the recommended daily intake of the Canadian Dietary Standard or Canada's Food Guide. The R.D.I. is oriented more in terms of what one may expect an individual to eat daily rather than the amount considered desirable by nutrition experts. Studies of eating patterns of certain groups of the Canadian population have shown that food habits may be quite different from Canada's Food Guide and still provide all necessary nutrients daily. Our food enrichment policy has therefore been established in relation to an approximation of the amount of food consumed daily that is looked upon as being "reasonable".

One should keep in mind the objectives of the regulations concerning nutritional claims* and food enrichment** when looking at the R.D.I. Although the R.D.I. at the present is a non-scientific measure, in most instances it has proven satisfactory for legislative purposes.

*See page 8.
**See page 16.

Table 3 REASONABLE DAILY INTAKE FOR VARIOUS FOODS

Name and Description	R.D.I. Imperial Measure	R.D.I. Metric Measure
Alimentary Pastes, dry (macaroni, spaghetti, noodles, etc.)	3.0 oz.	85 g.
Beverage Bases and Mixes, Flavoured for Addition to Milk (ready to serve)	16.0 fl. oz.	454 ml
Bread, 5 slices	5.3 oz.	150 g.
Butter	2.0 oz.	57 g.
Buttermilk	8.0 fl. oz.	227 ml
Cereals, Breakfast or Infant	1.0 oz.	28 g.
Cereals, Puffed	0.5 oz.	14 g.
Cheese	2.0 oz.	57 g.
Cheese, Cottage	3.5 oz.	100 g.
Chocolate Drink, Chocolate Milk	30.0 fl. oz.	852 ml
Concentrated Milk, Concentrated Skim Milk (reconstituted and ready to serve)	30.0 fl. oz.	852 ml
Condensed Milk	15.0 fl. oz.	426 ml
Cream, Whipping	2.0 oz.	57 g.
(naming the flavour) Dairy Drink	30.0 fl. oz.	852 ml
Eggs	2 eggs	100 g.
Evaporated Milk, Evaporated Skim Milk	15.0 fl. oz.	426 ml
Fish or Shellfish	3.5 oz.	100 g.
Fruits, Dried	2.0 oz.	57 g.
Fruits (other than named fruits)	3.5 oz.	100 g.
Banana	5.0 oz.	150 g.
Lemon	1.8 oz.	50 g.
Lime	1.8 oz.	50 g.
Watermelon	7.0 oz.	200 g.
Fruit Drinks and Nectars (ready to serve)	4.0 fl. oz.	114 ml
Fruit Drink Bases, Mixes and Concentrates (ready to serve)	4.0 fl. oz.	114 ml
Fruit Juices (other than lemon juice and lime juice)	4.0 fl. oz.	114 ml
Lemon Juice	1.0 fl.oz.	28 ml
Lime Juice	1.0 fl. oz.	28 ml
Ice Cream, Ice Milk	3.5 oz.	100 g.
Infant Formulas, Prepared (ready to serve)	as directed by label	
Instant Breakfast, Ready Breakfast (ready to serve)	as directed by label	
Margarine	2.0 oz.	57 g.
Meat or Prepared Meat	3.5 oz.	100 g.
Meat Substitutes	3.5 oz.	100 g.
Milk, Whole	30.0 fl. oz.	852 ml
Milk Powder (reconstituted and ready to serve)	30.0 fl. oz.	852 ml
Modified Skim Milk	30.0 fl. oz.	852 ml
Molasses, Table or Blackstrap	1.5 oz.	43 g.
(naming the flavour) Milk	30.0 fl. oz.	852 ml
Nuts	1.0 oz.	28 g.
Peanut Butter	1.0 oz.	28 g.
Poultry Meat or Prepared Poultry Meat	3.5 oz.	100 g.
Skim Milk, Partly Skimmed Milk	30.0 fl. oz.	852 ml
(naming the flavour) Skim Milk	30.0 fl. oz.	852 ml
Skim Milk Powder, Partly Skimmed Milk Powder (reconstituted and ready to serve)	30.0 fl. oz.	852 ml
Soup (ready to serve)	7.0 fl. oz.	200 ml
Sterilized Milk	30.0 fl. oz.	852 ml
Vegetables (other than named vegetables)	3.5 oz.	100 g.
Beans, baked	8.5 oz.	250 g.
Potatoes, cooked	7.0 oz.	200 g.
Water Cress	0.5 oz.	14 g.
Vegetable Juices	4.0 oz.	114 ml
Yeast, baker's	0.5 fl. oz.	14 g.
Yogurt, plain	5.0 fl. oz.	150 g.

ENRICHMENT OF FOODS

Addition of certain nutrients to foods has been controlled in Canada for more than a quarter of a century. Already in the late forties regulations were established to define the amounts of vitamins and minerals that could be added to foods, and certain food standards, such as those for bread and flour, were modified to allow for the enrichment of these products. However, it was not until 1964 that the regulations indicated which unstandardized foods could be so enriched.

In Newfoundland a nutrition survey conducted in 1944 revealed evidence of widespread vitamin deficiencies on the island and the government quickly enacted laws making mandatory the enrichment of white flour with B vitamins. Because of evidence that calcium and iron were also in short supply in the Newfoundland diet, these two minerals were added to flour. A second survey, conducted in 1948, showed a general improvement in the nutritional status of Newfoundlanders. When the island joined Canada in 1949, it was decided to amend the *Food and Drug Regulations* to permit voluntary enrichment of white flour and bread with thiamin, riboflavin, niacin and iron.

This action outlines the two characteristic features of the early enrichment policy followed by Canada: addition of nutrients to foods was permitted to correct or alleviate a real or potential nutrient deficit and the addition was optional. However, with time, criteria for the enrichment of foods have been revised to correspond more closely to the needs of a technological society.

Regulations on food enrichment

Today the *Food and Drug Regulations* permit or make mandatory the enrichment of a food when there is a nutritional justification for it:

- in the case of insufficient intake of a nutrient, such as iodine in table salt;
- when a product replaces a meal or a food normally considered an important source of essential nutrients in the Canadian diet, such as margarine, and breakfast substitutes;
- when a vitamin or a mineral is removed from a staple food in the course of good manufacturing practice, as in flour.

Besides correcting existing deficiencies, this policy ensures that the quality of the food supply does not deteriorate.

When there is nutritional justification, a food may be fortified if it is a suitable vehicle for a particular nutrient and if it reaches the people who need it. When a food is enriched the amount of vitamin or mineral added to it must be stated on the label.

To make this enrichment meaningful and to prevent an excess, the regulations state the minimum and maximum amounts of certain nutrients which may be added to the R.D.I. of a food. The lower limits represent approximately 40-75% of the recommended daily intake and the upper limits vary from once to twice the

recommended daily intake. Table 4 presents the list of foods that may be enriched and indicates the nutrients which may be added to those products. Table 5 specifies the minimum and maximum amounts of nutrients that may be added to an R.D.I. of the foods as listed in Table 4. Table 6 gives the list of nutrients that may be added to foods according to Table 4 but for which no general quantitative limits have been established. Presently, enrichment is mandatory only for table salt, instant or ready breakfasts, simulated meat and simulated poultry products, and meat or poultry products extended with non-meat or non-poultry protein. Bread and flour which are enriched must contain nutrients in the amounts stated in Table 4.

Rethinking the enrichment policy

Enrichment of foods is a preventive health measure and our knowledge of the nutritional status and the eating habits of Canadians has always influenced its orientation. In the last few years, evidence had accumulated indicating that the eating pattern of Canadians was changing; for instance, snack foods and substitute foods were gaining popularity and more meals were eaten outside the home. Time had come to review critically the enrichment policy, and in 1971 the Health Protection Branch published an Information Letter on the "Proposed Guidelines for the Addition of Nutrients to Foods".*

Since then, another Information Letter, on the "Addition of Vitamins and Mineral Nutrients to Foods"**, has been published which proposes that enrichment of foods with iron and with vitamins A, C, D, thiamin, riboflavin, and niacin be made mandatory rather than optional.

Guidelines for the addition of nutrients to foods

1. Vitamins, minerals and protein added to traditional foods should be present in amounts related to the purpose of the addition:
   a) to replace those nutrients lost in the course of good manufacturing practice if the amount originally present provided at least 10% of the daily requirement of these nutrients in a reasonable daily intake of the food. The amount added should compensate for that lost in processing.
   b) to correct a demonstrated deficiency of one or more of these nutrients in some segment of the population if such addition is the most effective means of correcting the deficiency. The amount should only be sufficient to correct the deficiency.
2. A food sold or used as a substitute for a traditional food should be nutritionally equivalent to that food for which it is a substitute.
3. Foods sold or represented as meal replacements shall contain essential nutrients, including calories, in amounts related to the purpose of the meal, e.g. instant breakfasts and infant formulas.
4. Snack foods for which nutritional claims are made and which supply at least 200 calories in a reasonable daily intake, shall contain essential nutrients in proportion to their caloric content. No nutritional claims should be made for unfortified snack foods or fun-foods.

Points to stress in nutrition education

- How to recognize enriched foods and how to select them wisely.
- Vitamins present in enriched foods have the same biological value as vitamins naturally occurring in foods.
- If a permitted enriched food is not offered in your region, ask for it.

U.S.A. legislation on enrichment

In many cases the American legislation pertaining to vitamin and mineral enrichment of certain foods differs from the Canadian regulations and proper adjustment should be made when using American food tables to calculate the nutritive value of a product.

*I.L. No. 351, April 28, 1971.
Health Protection Branch, Health & Welfare Canada.

**I.L. No. 426, October 1, 1974.
Health Protection Branch, Health & Welfare Canada.

TABLE 1 FOODS TO WHICH A VITAMIN, MINERAL NUTRIENT OR AMINO ACID MAY BE ADDED

Food	Vitamin, Mineral Nutrient or Amino Acid	Limits
Breakfast cereals	Thiamin, niacin or niacinamide, riboflavin, iron.	As stated in Table 5.
Fruit nectars, fruit drinks and bases, concentrates and mixes for fruit drinks, vegetable drinks, bases and mixes for vegetable drinks, and a mixture of vegetable juices	Vitamin C.	As stated in Table 5.
Infant cereal products	Thiamin, niacin or niacinamide, riboflavin, iron, calcium, phosphorus, iodine.	As stated in Table 5.
Margarine and other similar substitutes for butter	Vitamin A, vitamin D.	As stated in Table 5.
Alimentary pastes	Thiamin, niacin or niacinamide, riboflavin, iron.	As stated in Table 5.
Prepared infant formulae	Vitamin C, vitamin A, vitamin D, vitamin B_{12}, thiamin, riboflavin, niacin or niacinamide, pyridoxine, folic acid, vitamin E, d-pantothenic acid, iron, iodine, calcium, phosphorus, sodium, potassium, copper, magnesium, manganese, zinc, lysine, methionine, tryptophane.	As stated in Table 5.
Flavoured beverage mixes and bases recommended for addition to milk	Vitamin A, thiamin, niacin or niacinamide, vitamin C, iron.	As stated in Table 5.
Foods represented as meat substitutes	Lysine, methionine.	No quantity specified.
Ready breakfast, instant breakfast and other similar breakfast replacement foods however described	Vitamin A, thiamin, riboflavin, niacin or niacinamide, vitamin C, iron.	As stated in Table 5.
Condensed milk, milk, milk powder, sterilized milk	Vitamin D.	As stated in Table 5.
Modified skim milk, modified partly skimmed milk, and flavoured milk described in section B.08.016, chocolate drink, any flavoured . . .	Vitamin A, vitamin D.	As stated in Table 5.

TABLE 4 FOODS TO WHICH A VITAMIN, MINERAL NUTRIENT OR AMINO ACID MAY BE ADDED

Food	Vitamin, Mineral Nutrient or Amino Acid	Limits
. . . .dairy drink described in section B.08.023, skim milk, partly skimmed milk, partly skimmed milk powder, skim milk powder, any flavoured skimmed milk described in section B.08.026		
Evaporated milk B.08.027 and B.08.010	Vitamin C, vitamin D.	As stated in Table 5 for vitamin D. The minimum amount of vitamin C should be 60 mg in a R.D.I.
Evaporated skim milk, concentrated skim milk, evaporated partly skimmed milk, concentrated partly skimmed milk. B.08.027 and B.08.011	Vitamin C, vitamin A, vitamin D.	As stated in Table 5 for vitamins A and D. The minimum amount of vitamin C should be 60 mg in a R.D.I.
Apple juice, reconstituted apple juice, grape juice, reconstituted grape juice, pineapple juice, reconstituted pineapple juice, concentrated fruit juice, apple and any juice described in section B.11.132	Vitamin C.	As stated in Table 5.
Enriched bread B.13.022	Nutrients come from the enriched flour that must be used in the making of enriched bread.	One pound of enriched bread shall contain not less than: / not more than: thiamin 1.1 mg / 2.4 mg riboflavin 0.8 mg / 1.8 mg niacin 10.0 mg / 15.0 mg iron 8.0 mg / 12.5 mg
Enriched flour B.13.002	Thiamin, niacin or niacinamide, riboflavin, iron, calcium.	One pound of enriched flour shall contain not less than: / not more than: thiamin 2.0 mg / 2.5 mg riboflavin 1.2 mg / 1.5 mg niacin 16.0 mg / 20.0 mg iron 13.0 mg / 16.0 mg and may contain calcium 500.mg / 650.0 mg

TABLE 4 FOODS TO WHICH A VITAMIN, MINERAL NUTRIENT OR AMINO ACID MAY BE ADDED

Food	Vitamin, Mineral Nutrient or Amino Acid	Limits
Enriched vitamin B white flour B.13.004	Thiamin, niacin or niacinamide, riboflavin, iron.	Same as above except no calcium added.
Dehydrated potatoes	Vitamin C.	As stated in Table 5.
Table salt, table salt substitutes B.17.003	Iodine.	.01% KI.

TABLE 5 QUANTITATIVE LIMITS FOR THE ADDITION OF CERTAIN NUTRIENTS TO FOODS

Nutrient	Minimum in a R.D.I.	Maximum in a R.D.I.	Minimum in a R.D.I. if food is intended for children under 2
Vitamin A	1600 I.U.	2500 I.U.	1000 I.U.
Vitamin D	300 I.U.	400 I.U.	300 I.U.
Vitamin E		15 I.U.	5 I.U.
Vitamin C	20.0 mg	60.0 mg	20.0 mg
Thiamin	0.6 mg	2.0 mg	0.4 mg
Riboflavin	1.0 mg	3.0 mg	0.6 mg
Niacin	6.0 mg	20.0 mg	4.0 mg
Pyridoxine		1.5 mg	0.6 mg
Calcium	300.0 mg	—	—
Phosphorus	300.0 mg	—	—
Iron	4.0 mg	—	—
Iodine	0.1 mg	—	—

TABLE 6 NUTRIENTS THAT MAY BE ADDED BUT FOR WHICH NO QUANTITATIVE LIMITS HAVE BEEN SET

Sodium	D-pantothenic acid	Lysine
Potassium	Folic acid	Methionine
Zinc	Biotin	Tryptophane
Copper	Vitamin B_{12}	
Magnesium	Vitamin K	
Manganese		

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CONTROL OF PATHOGENS AND MYCOTOXINS IN FOODS

The present mode of living and technology has increased our exposure to food-borne infection. As more people are eating outside the home, a greater number of food service employees will require proper training in the safe handling of foods. A contaminated creamed chicken served in a school cafeteria or a superjet will certainly claim several victims. On the other hand, the convenience foods, ready-to-eat items, and frozen prepared dinners requiring only minimum heating prior to serving are open avenues for mass infection. Our production and distribution system is such that the output of a food manufacturing plant may be rapidly distributed nationwide or even worldwide. This means that an infected employee, or a breakdown or deterioration of some phase of plant sanitation, can potentially infect thousands of consumers instead of a limited surrounding community.

However, food-borne illnesses associated with church luncheons, Sunday picnics and wedding receptions are by no means a threat of the past and are being reported constantly.

It is estimated that 5 to 10 million cases of acute digestive illness occur annually in the U.S.A. but less than 1% of these are even reported, let alone investigated sufficiently to determine the causative agents or their routes of transmission. In Canada reported incidents of food-borne illness appear monthly in the Epidemiology Bulletin, Health and Welfare, Canada.

The most commonly involved pathogens in food-borne illness are Staphylococci, Salmonella and Clostridium perfringens, while outbreaks due to Clostridium botulinum are less frequent.

Health protection branch control of pathogens in foods

Legislation

There are several provisions in the *Food and Drugs Act* that make it possible for the Health Protection Branch to exercise control over the spread of pathogenic microorganisms.

The broad terms of reference are set out in articles 4 and 7 of the Act*. However, several of the regulations deal more specifically with this problem, and a few are illustrated here:

B.21.025 "No person shall sell smoked fish or a smoked fish product packed in a container that has been sealed to exclude air unless it

a. has been heat-processed after sealing at a temperature and for a time sufficient to destroy all spores of the species *Clostridium botulinum;* . . ."

B.22.032 "No person shall sell any egg product or liquid eggs for use as a food unless it is free from the genus *Salmonella*, as determined by the official method".

B.14.014 "Notwithstanding Section B.14.013 a meat, meat by-product or preparation thereof, packed in a hermetically sealed container that has not been processed as required by Section B.14.013, may be sold if

a. it has been stored continuously under refrigeration, and the label carries a statement on the main panel to the effect that the product is perishable and must be kept refrigerated;

b. it has been maintained continuously in the frozen state and the label carries a statement on the main panel to the effect that the product is perishable and must be kept frozen;

c. it contains a Class 1 preservative or appropriate mixtures thereof in accordance with good manufacturing practice and has been heat processed after or at the time of sealing at a temperature and for a time sufficient to prevent the formation of any bacterial toxins;

*See page 4.

d. it has been subjected to a dehydration procedure in accordance with good manufacturing practice; or

e. it has a pH of 4.4 or less"

Inspection

The purpose of Health Protection Branch surveillance is not only to isolate and identify pathogens in foods that present a health hazard to consumers, but also to detect those foods that have been produced under unsanitary conditions so that they either are potentially hazardous to health or unwholesome.

The food inspectors pursue a well delineated microbiological program on several fronts:

- samples of imported foods and various food products at the retail level are taken and analysed — imported foods judged unsatisfactory are refused entry;
- at the manufacturers and warehouses, samples of raw materials from the production line are taken and analysed;
- a microbiological plant inspection is carried out by an inspector and a microbiologist, whenever unusual or unexpected microbiological findings are evident in a food plant.

Education

Workshops have been held with manufacturers in various regions to promote better hygienic practices in food processing plants. Our inspectors also provide advice to the manufacturer for improvement of sanitary conditions when needed.

The Canadian Restaurant Association has developed and published a Sanitary Code for the food service industry and the Health Protection Branch cooperated in this project. To support this effort, Educational Services from Health Protection Branch has prepared material designed to be used in training the food service worker in the safe handling of foods.

On the home front it is also essential to pursue a consumer education program on sanitation and proper food handling emphasizing the following points:

- foods should be kept hot or cold and should not be held at temperatures between 40° F and 140° F (4° — 60° C) for a prolonged period of time.
- foods that have an off-odour should be discarded and not tasted.
- frozen foods thawed and held at room temperature for more than two hours should not be refrozen.
- home canning of meat, fish and non-acid vegetables is discouraged.
- incidences of food-borne illness should be promptly reported to local health agencies.

Control of mycotoxins

Mycotoxin is a generic term used to describe the toxic substances formed during the growth of moulds. Poisoning by mycotoxins is called mycotoxicosis and it is frequently mediated through particular organs notably the liver, kidneys and brain.

Under suitable conditions, foods provide a favourable medium for mould growth and once the mycotoxins have been formed they remain even though the mould is subsequently killed. The major known food contaminant mould of this kind is Aspergillus flavus and the most important of the toxins it produces are the aflatoxins. Aflatoxins are potent poisons and imported ground nut meal contaminated with them caused extensive poultry and livestock losses in Britain in 1960.

Inspectors of the Health Protection Branch check finished nuts and nut products such as peanut butter offered for sale for the presence of aflatoxin. A level of acceptance is established and this is continually being lowered in consideration of such aspects as toxicology, improvements in analytical methodology and the state of industrial technology to cope with the problem. Other foods that are analysed for the presence of mycotoxins are: flour, baby foods, cereals, confections, coffee, cocoa, fruit juices, spices and other foods containing food ingredients susceptible to mould contamination.

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Safety is for the Birds — Dispatch #22
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Danger Zone in the Kitchen — Booklet
Food Safety: its all in your hands — Booklet
The Danger Zone — Poster
Food Poisoning — Leaflet

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115 Berkeley Street, Toronto, Ontario:
Food Handle with Care — Slide Series

Table 7 Selected Causes of Microbial Food Poisoning

Disease & Food Poisoning Agent	Frequency & Toxicity	Symptoms	Onset & Duration of Symptoms	Habitat & Foods Commonly Involved	Preventive measures
TOXINOGENIC					
Staphylococcal food poisoning *(Staphylococcus aureus)* heat stable toxin	Most common; death is rare	Cramps, nausea, vomiting, diarrhea	Onset 1-6 hrs. after eating: last 1 day	Found in nose & throat of most people; foods — baked ham, roast fowl, meat or potato salads, fish, cream desserts	Temperature control; sanitary food handling practices
Botulism *(Clostridium botulinum)* anaerobic bacteria; heat labile toxin	Rarest; death frequent, mortality rate at least 50%	Double vision, infection of nervous system, then paralysis	Onset 1 day to 1 week after eating, paralysis and/or death; recovery slow.	Found in most soils; foods — underprocessed home-canned or commercial vegetables, fish & meats	Temperature control through adequate cooking & refrigeration
INFECTIOUS					
Perfringens food Poisoning *(Clostridium perfringens)*	Very common; death is rare	Diarrhea, cramps	Onset 8-24 hrs. after eating; last 8 hrs.	Found everywhere, espec. in gut of animals; foods — meats, gravies	Temperature control through adequate cooking & immediate refrigeration or holding at above 140° F.
Salmonellosis *(Salmonella)*	Very common; occasional death for aged, infants, infirm	Cramps, chills vomiting, diarrhea, fever	Onset 8-24 hrs. after eating; usually lasts 2-3 days, but may last for weeks	Found in gut of domestic animals, espec. chickens; foods — poultry, eggs & egg products	Temperature control; sanitary food handling practices
Shigella poisoning *(Shigella)*	Uncommon; death unknown	Cramps, diarrhea	Onset 7-66 hrs. after eating; lasts ½ day to 1 week	Found in sewage contaminated water; foods — milk, ice cream	Sanitation
E. coli poisoning *(Escherichia coli)*	Uncommon; death unknown	Cramps, diarrhea, vomiting	Onset 6-36 hrs. after eating; lasts ½ day to 1 week	Found in sewage contaminated water; foods — shellfish	Sanitation

FOOD ADDITIVES

The present regulations on food additives date back to 1964 when the positive lists of permitted additives as we know them were established after a careful review of all data available on the acceptability of each compound. Prior to that date positive lists existed for certain compounds such as food colours and preservatives, but they were not as extensive.

It is also important to point out that provision existed and still exists in the *Food and Drugs Act* to prohibit the use of any substance considered unsuitable for use in foods.

What is a food additive?

According to the regulations a "food additive" means "any substance, including any source of radiation, the use of which results, or may reasonably be expected to result in it or its by-products becoming a part of or affecting the characteristics of a food".

By this definition a food additive does not include:

- any nutritive material that is used, recognized or commonly sold as an article or ingredient of food;
- vitamins, mineral nutrients and amino acids;
- spices, seasonings, flavouring preparations, essential oils, oleoresins and natural extractives;
- agricultural chemical residues;
- food packaging materials and components thereof; and
- drugs recommended for administration to animals that may be consumed as food.

There are other regulations which govern the use of these products.

Regulations regarding food additives

The list of permitted food additives is set out in table form in fourteen categories and each table lists the following:

- purpose of food additives
- names of additives that can be used for that purpose
- foods in which they are permitted
- the amount permitted

The following are examples of various food additives in each of the fourteen categories covered by these tables.

Anticaking agents

Calcium silicate permitted in salt at the level of 1.0%. Magnesium stearate permitted in unstandardized dry mixes at G.M.P. (Good Manufacturing Practice) level.

Bleaching, maturing and dough conditioning agents

Calcium peroxide permitted in bread at the level of 1000 p.p.m. of flour. Potassium iodate permitted in unstandardized bakery foods at G.M.P. level

Colouring agent

B-Apo-8 carotenal permitted in sherbet at the level of 35 p.p.m. Tartrazine permitted in unstandardized foods at the level of 300 p.p.m.

Emulsifying — gelling — stabilizing and thickening agents

Agar-agar permitted in ice cream at 0.5% level. Lecithin permitted in cocoa at the 0.5% level. Sodium phosphate dibasic permitted in cottage cheese at the 0.5% level.

Food enzymes

Catalase from aspergillus permitted in cheddar cheese at the level of 20 p.p.m. Invertase permitted in confectionery at G.M.P. level.

Firming agents

Potassium aluminum sulphate permitted in pickles and relishes at G. M. P. level.

Glazing and polishing agent

Beeswax permitted in confectionery at 0.4% level.

Miscellaneous

Oxystearin to inhibit crystal formation permitted in cotton seed oil, peanut oil and soy bean oil at the level of 0.125%. Magnesium silicate, dusting agent permitted in chewing gum at G.M.P. level.

Non-nutritive sweeteners

Saccharin permitted in carbohydrate or calorie-reduced foods at G.M.P. level.

pH adjusting agents — acid reacting materials and water correcting agents

Citric acid permitted in unstandardized foods at G.M.P. level. Lactic acid permitted in cottage cheese at G.M.P. level.

Preservatives

Ascorbic acid permitted in preserved meat and poultry at G.M.P. level. Benzoic acid permitted in jam at the level of 1000 p.p.m.

Sequestering agents

Disodium EDTA permitted in dressing and sauces at the level of 75 p.p.m.

Starch modifying agents

Sodium hydroxide permitted in starch at G.M.P. level.

Food additives used as yeast foods

Ammonium chloride permitted in bread at the level of 2500 p.p.m. of the flour.

The regulations also stipulate that food additives used in a product must be declared on the label* of all unstandardized foods. Provision is also made for the addition or deletion of compounds from the permitted list.

In the examples of food additives it may be noted that in some instances finite limits of use have not been specified; instead, the term G.M.P. is used. This does not imply that the materials can be used in any amount. In fact when the tables state that such compounds may be used in accordance with "Good Manufacturing Practice" (G.M.P.), such limits are governed by Regulation B.01.044 as "The amount . . . shall not exceed the amount required to accomplish the purpose for which that additive is permitted to be added to that food".

Criteria for purity

It is also important that criteria for purity be defined for food additives to ensure that the quality of these chemicals is such that they can be used in foods. The Food Chemical Codex prepared by the Committee of Food Protection, National Research Council and the National Academy of Science, U.S.A., answers this need and describes specifications for food grade chemicals. Representatives of H.P.B. serve on committees that draft these specifications, and Regulation B.01.045 in the *Food and Drug Regulations* requires that additives used in Canada meet the specifications of the Food Chemical Codex.

*See page 6 for regulations on labelling.

Procedure for accepting a new food additive

A manufacturer who wants to use a new additive must present a submission to the Food Directorate of the Health Protection Branch according to the requirements laid out in the regulations.

B.16.002. "A request that a food additive be added to or a change made in the Tables following section B.16.100 shall be accompanied by a submission to the Minister in a form, manner and content satisfactory to him and shall include

(a) a description of the food additive, including its chemical name and the name under which it is proposed to be sold, its method of manufacture, its chemical and physical properties, its composition and its specifications and, where that information is not available, a detailed explanation;

(b) a statement of the amount of the food additive proposed for use, and the purpose for which it is proposed, together with all directions, recommendations and suggestions for use;

(c) where necessary, in the opinion of the Director, an acceptable method of analysis suitable for regulatory purposes that will determine the amount of the food additive and of any substance resulting from the use of the food additive in the finished food;

(d) data establishing that the food additive will have the intended physical or other technical effect;

(e) detailed reports of tests made to establish the safety of the food additive under the conditions of use recommended;

(f) data to indicate the residues that may remain in or upon the finished food when the food additive is used in accordance with good manufacturing practice;

(g) a proposed maximum limit for residues of the food additive in or upon the finished food;

(h) specimens of the labelling proposed for the food additive; and

(i) a sample of the food additive in the form in which it is proposed to be used in foods, a sample of the active ingredient, and, on request a sample of food containing the food additive."

B.16.003 "The Minister shall, within ninety days after the filing of a submission in accordance with section B.16.002, notify the person filing the submission whether or not it is his intention to recommend to the Governor-in-Council that the said food additive be so listed and the detail of any listing to be recommended."

Evaluation of the submission

The following criteria form the basis of the Canadian policy in evaluating additives and follow the general trend of the FAO/WHO position.

1. the food additive must be safe for continued use;
2. its use must not lead to deception; and
3. its use must result in an advantage to the consumer by improving or maintaining the nutritive value, quantity, quality, or acceptability of the food.

The submissions are evaluated by scientists from the Food Directorate including toxicologists and food technologists. One of their major functions is to evaluate the safety of the proposed additive. To assist manufacturers, the Bureau has prepared a "Guide for Preparation of Submissions on Food Additives". This guide suggests the studies that are required before an additive is accepted. These include biochemical and physiological tests, subacute and chronic toxicity studies and reproduction studies which must be conducted on at least two species of animals.

From these investigations, a dosage that causes no demonstrable effect in the animals may be ascertained. Then the Acceptable Daily Intake for man is calculated by dividing the "no-effect-

level" in animals by a safety factor of usually 100. Thus if a substance has a no-effect-level in animals of 500 mg/kg of body weight, its Acceptable Daily Intake for man would be 5 mg/kg of body weight. Once the A.D.I. is established the probable intake of this additive by the Canadian population must be evaluated and then a rational decision can be taken regarding the safety of a given additive for a proposed use.

It may be noted that questions of toxicity are an international concern, and the FAO/WHO Joint Expert Committees meet regularly to evaluate the toxicity of food additives. The recommendations of these experts committees are always taken into account in reviewing submissions presented by manufacturers.

Even if a food additive is considered safe, its use will not be permitted if it may lead to deception, if it does not bring an advantage to the consumer or if it is not clearly established that it performs the function it is intended for.

Food colours

All regulations that apply to food additives apply to food colours as they constitute one category of food additives. However, because consumers often inquire about food colours, it seems important to reaffirm that their use is carefully controlled.

Colours permitted in foods

Type	*Tolerances*	*Specifications*
Natural colours —	to be used according to G.M.P.	What colour
Inorganic colours —	to be used according to G.M.P.	can be used
Synthetic colours —	specific for each one in terms of p.p.m.	in what food

Natural colours	*Inorganic colours*	*Synthetic colours*
Alkanet	Carbon Black	Amaranth
Annatto	Charcoal	Brilliant Blue FCF
Anthocyanins	Iron Oxide	Citrus Red No. 2
β-apo-8'-Cerotenel	Metallic Aluminium	Erythrosine
Beet red	Metallic Silver	Fast Green FCF
Canthaxanthin	Titanium Dioxide	Indigotine
Caramel		Ponceau SX
Carotene		Sunset Yellow FCF
Chlorophyll		Tartrazine
Cochineal		
Ethyl β-apo-8'-Carotenoate		
Orchil		
Paprika		
Riboflavin		
Saffron		
Saunderswood		
Turmeric		
Xanthophyll		

Under certain circumstances a colouring agent is not permitted:

- if its use could constitute a danger to health; and
- if its use can become a means to disguise a poor quality food.

Home use of food colours

Consumers should also be careful in using food colours at home. As a protective measure, the *Food and Drug Regulations* specify that liquid preparations for use in or upon food shall be sold in containers having a 2 ounce capacity or less, which will only permit discharge of one drop at a time.

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PESTICIDES

Pesticides rank high in the list of technical innovations responsible for the increased productivity in agriculture. Their use parallels an equal improvement in the quality of agricultural products on the Canadian market.

Despite the claims of various alarmists, this progress has not been achieved at the expense of the health and safety of the Canadian consumer. The Health Protection Branch works in close cooperation with the Canada Department of Agriculture and other agencies advising on the safe use of pesticides and monitoring the final food products which may be offered to the consumer.

Before a product can be sold by a manufacturer for use on a food crop or for use in an area where food may be handled or processed, the product must be registered by the Canada Department of Agriculture. This involves a review of the product by the Health Protection Branch and, if necessary in the interest of the consumer, the conditions of use may be modified or a residue tolerance established. Such a residue tolerance may be considered as a safe level. The establishment of pesticide residue tolerances in or on food intended for human consumption was started in 1956, and today tolerances have been established for approximately 110 pesticides.

Procedure to determine tolerance level

The manufacturer's request

A tolerance for a given agricultural chemical is established at the request of the manufacturer.

The following information should accompany a request:

- Justification for the use of the product
- Evidence that the product is effective and practical for the purpose recommended
- The physical-chemical properties of the product
- The amounts to be applied and the frequency and time of application
- Full reports of investigations made to determine the safe levels of the residues
- The results of tests on the amount and nature of the residues remaining in or on the food crop and the description of a satisfactory analytical method for determining residues in or on the foods or classes of foods for which it was recommended
- A proposed tolerance

Review of data on toxicity studies

Estimated A.D.I. in mg/kg.

The acceptable Daily Intake for man is usually determined on the basis of the data obtained in toxicity studies in mammals. The starting point chosen is the maximum dose level that causes no deleterious effect in the most sensitive species.

This dose in mammals expressed in mg/kg of body weight, is divided by a large safety factor, usually 100. The value thus obtained is considered to be the "Acceptable Daily Intake", i.e. the maximum daily dose of the chemical which appears to be without appreciable risk when taken by man throughout his entire lifetime.

Tolerance levels in foods

It is the policy of the Health Protection Branch to establish tolerances at levels which are necessary to cover residues remaining on the crop at harvest, providing these are consistent with good agricultural practices and are considered to be safe. A calculation of the maximum Theoretical Daily Intake is made based on the tolerance levels proposed and the average per capita consumption of the foodstuffs concerned. Providing this Theoretical Daily Intake does not exceed the Acceptable Daily Intake estimated from toxicity studies, the tolerances are accepted and should allow a person to consume foods containing the pesticide at levels up to the tolerance levels for an entire lifetime without suffering any ill effects.

Health protection branch control

Routine examination of samples is conducted in regional laboratories in Halifax, Montreal, Toronto, Winnipeg and Vancouver by analysts who are specialists in pesticide determinations.

Products found to contain excessive residues are:

- prevented from ever reaching the market
- removed from the market or diverted to processing if processing will remove the residue
- or, in the case of imported foods they are refused entry.

Research

- development of new analytical methods of pesticide residues in order to improve the means of control
- evaluation of pesticide residues in an average meal as consumed by Canadian families.
- toxicological studies on pesticides

Foods for which no pesticide tolerances have been established

There are some major groups of foods for which no tolerances have been established, as for example, milk, eggs, fish, and certain meat products. Pesticides are not applied directly to such foods and the amounts which might inadvertently find their way into them should be kept to a minimum.

A very minute quantity of a pesticide in these foods is not necessarily considered harmful. As a practical policy, no action is taken if the amount of the pesticide will not present a danger to health.

Conclusion

Pesticide tolerance levels and the use of pesticides are constantly being reviewed and revised in the light of new data regarding toxicity and taking into account new methods of analysis for detection of residues. The Federal Interdepartmental Committee on Pesticides, with representatives from the following departments: Agriculture, Energy, Mines and Resources, Environment, Indian Affairs and Northern Development, National Defence, National Health and Welfare, and National Research Council, meets on a regular basis to deal generally with the use and effects of pesticides.

Data from the total diet studies (evaluation of residues in an average meal) indicate clearly that the amount of pesticide residues consumed by Canadians is far below the Accepted Daily Intake for all pesticides.

The policy of having two categories of foods, those for which a tolerance has been established and those with no tolerance, provides adequate protection to the public and at the same time, permits the necessary use of pesticides in agriculture production.

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FOODS FOR SPECIAL DIETARY USE

Regulations on foods for special dietary use have recently undergone a major revision, and a completely new division dealing with these products has been added to the *Food and Drug Regulations*.

New comprehensive labelling requirements should provide the consumer, the dietitian or the physician with the necessary information to make sound decisions on the use of these products. Compositional requirements have also been established to ensure that, when used properly, these foods should benefit the consumer by increasing significantly the quantity or the variety of foods permitted in his diet.

What are foods for special dietary use?

Foods for special dietary use are products specifically designed to meet the particular nutritional needs of individuals in whom the normal processes of assimilation or metabolism are modified or for whom a particular effect is to be obtained by a controlled intake of foods. Products that may be used in therapeutic diets but which have not been specially processed are excluded. For example, low sodium milk would be considered a food for special dietary use but yogurt would not.

There are a limited number of dietary treatments where the use of special foods may be necessary or advantageous. Accordingly, to avoid the proliferation of products recommended for all sorts of ailments, the new regulations specify clearly what types of products may be marketed as "dietetic". There are two permitted groups of products:

1) Products for which there are no present compositional or labelling requirements but which can be recommended for the following diets:

   Gluten-free diets,
   Protein restricted diets,
   Elemental or chemically defined diets,
   Tube feeding diets.

2) Products that must meet the compositional and labelling requirements set for one of the following foods:

   Carbohydrate-reduced
   Sugar-free
   Calorie-reduced
   Low Calorie
   Low Sodium

Labelling

Besides general labelling requirements, the label of special dietary foods shall indicate:

a) The identity of the product in close proximity to the common name and in the same type size, e.g.:

   Carbohydrate-reduced Peaches
   Sugar-free Gum
   Calorie-reduced Spread
   Low Calorie Dressing
   Low Sodium Peanut Butter

*See page 6 for labelling regulations.

b) The type of diet the product is recommended for:

Product:	Recommended For:
Carbohydrate-reduced Sugar-free	Carbohydrate-reduced Diet
Calorie-reduced Low Calorie	Calorie-reduced Diet
Low Sodium	Sodium-restricted Diet

c) The nutritional value of the product as follows:

PRODUCT	NUTRITIONAL VALUE
Carbohydrate-reduced Sugar-free Calorie-reduced Low Calorie	1) Carbohydrate, protein fat, mannitol and sorbitol g / 100 g or 100 ml *and* g/unit of ready to serve food 2) Calories / 100 g or 100 ml *and* calories/unit of ready to serve food
Low Sodium	1) Sodium, potassium mg / 100 g or 100 ml *and* mg/unit of ready to serve food 2) Carbohydrate, protein, fat g / 100 g or 100 ml *and* g/unit of ready to serve food 3) Calories / 100 g or 100 ml and calories/unit of ready to serve food

d) Mannitol and sorbitol

Because of their slow absorption rate, mannitol and sorbitol are not considered available carbohydrates, and although their presence is indicated on the label, they are not accounted for in the quantitative carbohydrate declaration. However, their caloric value is included in the total energy value of the product and is calculated as 2 Calories per gram of mannitol and 4 Calories per gram of sorbitol.

Composition of special dietary foods

Dietetic foods are defined in terms of the products for which these foods may be a substitute.

Carbohydrate-reduced food:

- may contain not more than 50% of the available CHO found in the food for which it is a substitute.
- may not contain more calories than the food it replaces.
- may be made providing the original product was a significant source of CHO and derived at least 25% of its calories from CHO.

Sugar-free food:

- is a carbohydrate-reduced food.
- may contain not more than 0.25% of available carbohydrate.
- may provide not more than one Calorie per 100 g or 100 ml except for chewing gum.

Calorie-reduced food:

- shall contain not more than 50% of the calories found in the food it replaces.

Low calorie food:

- shall provide not more than 50% of the calories present in the food for which it is a substitute.
- shall supply not more than
  15 Calories per average serving
  and
  30 Calories in a R.D.I.

Low sodium food:

- shall contain not more than 50% of the sodium present in the food for which it is a substitute.

- shall supply not more than 40 mg Na/100 gm except for meat, fish, and poultry which may contain not more than 80 mg Na/100 gm.
- may not contain added sodium salt.

Permissible labelling

Comparison

Direct comparisons may be made pertaining to the calorie, carbohydrate or sodium content of a dietetic food, as outlined:

- with the food for which it is a substitute.

Acceptable

Calorie-reduced Peanut Butter
"Half the calories of peanut butter"

Non-acceptable

Calorie-reduced Peanut Butter
"Half the calories of jam"

- only specific comparisons are acceptable.

Acceptable

Golden Spread
"Half the calories of butter"

Non-acceptable

Golden Spread
"Fewer calories than butter"

- comparisons must always be valid, informative, and based on equal weights of the compared foods. Comparisons of slices or bowlfuls of any volume of food are considered misleading unless an equal volume has the same weight.

Non-cariogenic

Foods which meet the criteria for "sugar-free" may be described as "non-cariogenic" or by a synonymous term.

Salt-free label statement

- A food described as "salt-free" or "saltless" must be free of sodium salts such as sodium chloride, sodium benzoate, monosodium glutamate, etc.

  However, a "salt-free" food does not necessarily meet the criteria for a "low sodium food".

"Made without salt" or "No salt added" label statements

- These are acceptable claims if true and the product normally contains salt. Here again this claim would be considered misleading if the statement was made on the label or advertisement of a food containing as much sodium as the food for which it is a substitute despite the fact that no extra salt was added. Such a food could still contain a fair amount of sodium.

Dietetic version of a standardized food

- When a food for a special dietary purpose is a substitute for a food (ketchup) for which a standard exists in the *Food and Drug Regulations*, it may not be referred to as "Diet or Dietetic (Ketchup)", unless the special product meets that particular standard in all respects. Another acceptable name must be found for the food which does not suggest that the product meets the standard, e.g. "tomato condiment", and in addition, phrases such as, "use as (ketchup)" or "use in place of (ketchup)" may be used.

Regulations pertaining to the use of synthetic sweeteners

The only artificial sweeteners permitted in foods in Canada are saccharin and its ammonium, calcium and sodium salts. Saccharin is allowed only in calorie-reduced, carbohydrate-reduced, and sugar-free foods and in sugar substitutes, and its presence must be indicated on the label.

Cyclamates may be purchased only as sugar substitutes. They are sold as drugs and should be taken under a physician's advice as stated on the label.

Dietary supplements considered as drugs

Reducing plans and various dietary supplements may be considered drugs by the Health Protection Branch. The regulations controlling the labelling of drugs require the disclosure of indications for use and a quantitative list of ingredients on the label.

In Canada, the importation, advertisement or sale to the general public of any food, drug, cosmetic or device as a treatment, preventive or cure for obesity or any other disease listed in Schedule A is prohibited.

Schedule A diseases

Alcoholism
Alopecia
Anxiety state
Appendicitis
Arteriosclerosis
Bladder disease
Cancer
Convulsions
Depression
Diabetes
Disease of the prostate
Disorder of menstrual flow
Dysentery
Edematous state
Epilepsy
Gall bladder disease
Gangrene
Glaucoma
Gout
Heart disease
Hernia
Hypertension
Hypotension
Impetigo
Influenza
Kidney disease
Leukemia
Liver disease
Nausea and vomiting of pregnancy
Obesity
Pleurisy
Pneumonia
Poliomyelitis
Rheumatic fever
Rheumatoid arthritis
Scabies
Septicemia
Sexual impotence
Tetanus
Thyroid disease
Tuberculosis
Tumour
Ulcer of the gastro-intestinal tract
Vaginitis
Venereal disease

The sale of reducing plans is permitted where lessened intake of calories is the method of weight reduction and where a food, drug, cosmetic or device is an adjunct to the plan, provided that no claims are made to the effect that the product itself takes off weight.

A claim should also emphasize that the weight loss is due to eating less and not only due to the drug product.

Reducing plans

Permissible claim
"Take off pounds with Fade Away Reducing Plan".

Non-permissible claim
"Fade Away Pills will melt off fat".

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EDUCATIONAL SERVICES

The function of Educational Services is to inform Canadians about the activities of the Health Protection Branch and more specifically to make consumers aware of the health safeguards provided by the *Food and Drugs Act and Regulations.*

Educational Services prepares educational materials and maintains direct contact with educators and consumers through the assistance of trained consultants attached to Health Protection Branch offices in Halifax, Monreal, Toronto, Winnipeg, Edmonton and Vancouver. These consultants work with media but mainly with groups, teachers, community workers, consumer associations, provincial government departments and professional societies. Each one activates projects to suit the requirements of her area.

Consultants may give assistance to educators in several ways:

- help in planning conferences and seminars on food and drug protection measures;
- provision of informative material — booklets, bulletins, teaching aids;
- talks using visual aids;
- participation in community health and consumer education programs, and school workshops;
- provision of background material for speeches;
- advice on information re: changes in regulations and latest Health Protection Branch publications.

The central and coordinating office of Educational Services is in Ottawa. The broad goals are established there and materials such as booklets, fact sheets, and monthly bulletins are prepared and distributed.

The "Resource List for Educators" which describes Educational Services materials may be ordered from the Ottawa Office (see addresses at the end of this chapter).

Educational Services also welcomes comments from educators about the type of informative materials they require for projects on health topics under the jurisdiction of the Health Protection Branch.

The Educational Services consultants may be contacted at any of the following addresses:

Head Office:

Health Protection Branch
Educational Services
200 Isabella Street
Ottawa, Ontario
K1A 1B7

Regional Offices:

Health Protection Branch
2301 Midland Avenue
Scarborough, Ontario
M1P 4R7

Health Protection Branch
6th Floor, Customs Bldg.
1001 West Pender Street
Vancouver 1, B.C.
V6E 2M7

Health Protection Branch
5th Floor, Ralston Bldg.
1557 Hollis Street
Halifax, N.S.
B3J 2R7

Health Protection Branch
Federal Bldg.
310-269 Main Street
Winnipeg, Manitoba
R3C 1B2

Health Protection Branch
Room 30, Commonwealth Bldg,
9912 - 106 Street
Edmonton, Alberta
T5K 1E7

Health Protection Branch
1001 Saint-Laurent Blvd,
Longueuil, Quebec
J4K 1C7

APPENDIX

Standardized foods

Alcoholic beverages

Dry Gin
Whisky
Malt Whisky
Grain Whisky
Scotch Whisky
Irish Whisky
Canadian Whisky
Highland Whisky
Rum
Hollands Gin, Genever, Gin other than Hollands
Domestic Brandy
Imported Brandy
Cognac
Armagnac
Fruit Brandy or (naming the fruit) Brandy
Liqueurs and Alcoholic Cordials
Vodka
Wine
Fruit Spirit
Fruit Wine or (naming the Fruit) Wine
Vermouth
Wine Cocktail
Honey Wine
May Wine
Cider
Sparkling Cider
Champagne Cider
Malt Liquor
Ale
Beer
Light Beer
Stout
Porter
Hop extract

Baking powder

Baking powder

Cacao and chocolate

Cocoa Beans
Cocoa Nibs
Chocolate, Plain Chocolate, Bitter Chocolate or Chocolate liquor
Sweet Chocolate or Sweet Chocolate Coating
Milk Chocolate, Sweet Milk Chocolate, Coatings
Cocoa or Powdered Cocoa

Coffee

Unroasted Coffee or Green Coffee
Roasted Coffee or Coffee

Colours

Oil-soluble Annatto, Annatto Butter Colour or Annatto Margarine Colour
β-Carotene
β-Apo-8′-Carotenal
Ethyl β-Apo-8′-Carotenoate
Canthaxanthin
Carbon Black
Charcoal
Titanium Dioxide
Amaranth
Erythrosine
Ponceau SX
Tartrazine
Sunset Yellow FCF
Fast Green FCF
Indigotine
Brilliant Blue FCF
Citrus Red No. 2

Spices, dressings and seasonings

Cloves
Ginger
Jamaica Ginger
Limed or Bleached Ginger
Mustard, Mustard Flour or Ground Mustard
Allspice or Pimento
Cinnamon or Cassia
Ceylon Cinnamon
Mace
Nutmeg
Black Pepper or Peppercorn
Thyme
Caraway Seed
Cardamon Seed
Celery Seed
Coriander Eeed
Dill Seed
Mustard Seed
Marjoram
Curry Powder
Onion Salt
Garlic Salt
Celery Salt

Spices, dressings and seasonings (Cont'd.)

White Pepper
Cayenne Pepper
Paprika
Turmeric
Sage
Celery Pepper
Mayonnaise
French Dressing
Salad Dressing

Dairy products

Milk or Whole Milk
Skim Milk
Partly Skimmed Milk
Milk Fat or Butter Fat
Sterilized Milk
Condensed Milk or Sweetened Condensed Milk
Evaporated Milk or Unsweetened Condensed Milk
Evaporated Skim Milk or Concentrated Skim Milk
Milk Powder, Dry Milk, Dry Whole Milk
Skim Milk Powder or Dry Skim Milk
(naming the flavour) Milk
Chocolate Drink
Skim Milk Cheese
Cream Cheese
Cream Cheese with (naming the other cheese, fruit, vegetable, relish or chocolate)
Modified Partly Skimmed Milk
Malted Milk or Malted Milk Powder
(naming the flavour) Dairy Drink
(naming the flavour) Skim Milk
Cheese
Cheddar Cheese or Canadian Cheddar Cheese
The following varieties or types of cheese: Cheddar, Alpin, Asiago, Blue Vein, Bel Paese, Brick, Camembert, Feta, Gouda, Granular, Limburger, Neufchatel, Port du Salut, Esrom, Havarti, Maribo, Pasta Filata, Samsoe, Steppe, Tilsiter, Emmenthaler, Gruyere, Swiss, Bra, Edam, Leyden, Parmesan, Romano, Part Skim Pizza, Part Skim Mozzarella, Part Skim Scamorza, Hard Grating Cheese
Cottage Cheese
Creamed Cottage Cheese
Butter
Whey Butter
Ice Cream Mix
Ice Cream
Sherbet
Ice Milk Mix
Ice Milk
Cream

Dairy products (Cont'd.)

Process Cheese, Emulsified Cheese, Process cheese spread or Process cream cheese, Process cream cheese spread
Skim Milk Process Cheese
Whey
Bacterial Culture
(naming the flavour) Malted Milk or (naming the flavour) Malted Milk Powder
Modified Skim Milk

Fats and oils

Vegetable fats and oils
Animal fats and oils
Olive Oil or Sweet Oil
Cotton Seed Oil
Cocoa Butter
Corn Oil or Maize Oil
Peanut Oil or Arachis Oil
Soy Bean Oil or Soja Oil
Sunflower Seed Oil
Shortening
Monoglycerides, Monoglycerides and Diglycerides
Lard
Leaf Lard
Suet

Flavouring preparations

(naming the fruit) Extract or Essence Naturally Fortified or (naming the fruit) Flavour Naturally Fortified
(naming the flavour) Extract or Essence
Lemon Essence, Extract or Flavour
Nutmeg Essence, Extract or Flavour
Orange Essence, Extract or Flavour

Flavouring preparations (Cont'd.)

Artificial (naming the flavour) Extract or Essence, Imitation (naming the flavour) (naming the flavour) Flavour
Artificial or (naming the flavour) Imitation (naming the flavour)
Celery Seed Essence, Extract or Flavour
Cassia Essence, Extract or Flavour or Cassia
Cinnamon Essence, Extract or Flavour
Ceylon Cinnamon Essence, Extract or Flavour
Ginger Essence, Extract or Flavour
Almond Essence, Extract or Flavour
Anise Essence, Extract or Flavour
Peppermint Essence, Extract or Flavour
Rose Essence, Extract or Flavour
Savory Essence, Extract or Flavour
Spearmint Essence, Extract or Flavour
Sweet Basil Essence, Extract or Flavour
Marjoram or Sweet Marjoram Essence, Extract or Flavour
Thyme Essence, Extract or Flavour
Vanilla Extract, Essence or Flavour
Wintergreen Essence, Extract or Flavour
Clove Essence, Extract or Flavour

Fruits, vegetables and their products

Canned (naming the vegetable)
Canned Mushrooms
Frozen (naming the vegetable)
Tomatoes or Canned Tomatoes
Tomato Juice
Tomato Paste
Canned (naming the fruit)
Frozen (naming the fruit)
(naming the fruit) Juice
Apple Juice
Grapefruit Juice
Lemon Juice
Lime Juice
Orange Juice
Pineapple Juice

Fruits, vegetables and their products (Cont'd.)

Concentrated Tomato Paste
Tomato Pulp
Tomato Puree
Tomato Catsup, Catsup
Beans with Pork
Beans or Vegeterian Beans
Olives
Pickles and Relishes
(naming the fruit) Jam
(naming the fruit) Jam with Pectin
Apple (or rhubarb) (naming the fruit) Jam
(naming the citrus fruit) Marmalade
(naming the citrus fruit) Marmalade with Pectin
Pineapple Marmalade or Fig Marmalade
Pineapple or Fig Marmalade with Pectin
Carbonated or Sparkling (name the fruit) Juice
Concentrated (naming the fruit) Juice
(naming the fruits) Juice
Apple and (naming the fruit) Juice
Reconstituted (naming the fruit) Juice or (naming the fruit) Juice from concentrate
(name the fruit) Preserve (Conserve)
(naming the fruit) Jelly
(naming the fruit) Jelly with Pectin
Mince, Mince Meat or Fruit Mince
Boiled Cider
Apricot Nectar

Grain and bakery products

Flour or White Flour
Enriched Flour or Enriched White Flour
Vitamin B White Flour (Canada Approved)
Enriched Vitamin B White Flour
Crushed Wheat or Coarse Ground Wheat
Cracked Wheat
Rice
Corn Starch
Bread or White Bread
Enriched Bread or Enriched White Bread

Grain and bakery products (Cont'd.)

Whole Wheat Flour or Entire Wheat Flour
Graham Flour
Gluten Flour
Enriched Vitamin B White Bread
Raisin Bread
Vitamin B White Bread (Canada Approved)
(naming the percentage) Whole Wheat Bread
Brown Bread

Meat and meat products

Meat
Meat By-products
Prepared Meat or Prepared Meat By-products
Meat Binder or (naming the meat product) Binder
Pumping Pickle
Minced or Ground Beef
Preserved Meat or Preserved Meat By-product
Sausage or Sausage Meat
Potted Meat, Meat Paste or Meat Spread
Potted Meat By-product, Meat By-product Paste or Meat By-product Spread
Meat Loaf, Meat Roll, Meat Lunch or luncheon Meat
Meat By-product loaf or Meat and Meat By-product Loaf
Headcheese
Brawn
Edible Bone Meal or Edible Bone Flour
Wieners and Beans
Beans and Wieners

Salt

Salt
Flour Salt

Sweetening agents

Sugar
Liquid Sugar
Invert Sugar
Liquid Invert Sugar
Icing Sugar
Brown Sugar, or Golden Sugar
Refined Syrup, Refiners' Syrup or Golden Syrup
(naming the source of the Glucose) Syrup
Fancy Molasses
Table Molasses
Refiners' Molasses, Blackstrap Molasses or Cooking Molasses
Dextrose
Glucose
Glucose Solids
Honey

Vinegar

Vinegar
Wine vinegar
Spirit Vinegar, Alcohol Vinegar, White Vinegar or Grain Vinegar
Malt Vinegar
Cider Vinegar or Apple Vinegar
Blended Vinegar

Tea

Tea
Black Tea
Green Tea

Marine and fresh water animal products

Fish
Prepared Fish
Fish Binder
Fish Protein
Chicken Haddie and Flaked Fish
Preserved Fish
Finnan Haddie

Poultry

Poultry
Poultry Meat
Poultry Meat By-product
Giblets
Prepared Poultry Meat or Prepared Poultry Meat By-products
Filler
Preserved Poultry Meat or Preserved Poultry Meat By-products
Canned (naming the Poultry)
Broth that is used in canning (naming the Poultry)
Boneless (naming the Poultry)
Liquid, Dried or Frozen Whole Egg, Egg-Yolk, Egg-White, Egg-Albumen or mixture of these.

NOTES

Cat. No.: H44-3172

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Oxford
ESSELTE
18%